The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 129, NO. 6 — CHICAGO, ILLINOIS — OCTOBER 6, 1945

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OUR NATIONAL MEDICAL RESOURCES

THE URGENCY OF AN ANALYSIS

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In a recent statement Henry L. Stimson, then Secretary of War, forcefully reminded the nation that we have come ". . . rather suddenly in sight of the ultimate limitations of our manpower and resources." Although the end of active fighting has brought, or will shortly bring, the solution to many of the problems which arose during the war as the result of limited or inadequate resources, both human and material, it will not, as many hopefully believe, bring a solution to all of them. This applies with special emphasis to the field of medicine.

The inadequacy of the national medical resources which became so acutely evident during the war is by no means a temporary phenomenon. It is a chronic problem. It was merely aggravated by the circumstances of war. The shortage still exists, even though the war is over, and many factors now operative threaten to make it even more acute. Economic and social forces are pressing for prompt and effective solution of problems which still are only partially defined. Some formal reorganization or redistribution of personnel and facilities is inevitable. In order to effect intelligent direction of any reorganization of medical services, however, a thorough analysis of the national medical resources in relation to the national medical needs is as urgent as it is essential.

A consideration of certain aspects of the military experience with this problem may contribute to a better understanding of its postwar significance. As in many other fields, it was necessary during the war to meet both military and civilian medical needs with such resources as currently existed and with such increments as could be provided without disruption of other military needs. There were, however, certain obvious differences between the supply of physicians and the supply of such items as automobiles and washing machines. It was inconvenient to do without the latter; it was impossible to do without the former and impossible also greatly to increase the supply at short notice. As a matter of fact the unfortunate policy of Selective Service in the last years of the war in refusing to defer prospective medical students will result for some years to come in a decrease in the usual annual increment of physicians. Had the war continued longer, this policy might well have created serious shortages in the numbers required to meet the medical needs of the nation.

The record of the U. S. Army Medical Department during the war has been justly acclaimed. The soldiers of this country were better cared for than any other soldiers in the world have ever been cared for. The wounded were saved from death and were returned to military effectiveness in numbers never before considered possible. Men were saved from disability and deformity who in previous wars would either have lost their lives or would have lived out their days in invalidism and worse.

This record was not achieved by chance. Too much credit for its accomplishment cannot be given to the wisdom and foresight and imagination of the Surgeon General of the Army. At the very beginning of the war he clearly comprehended (1) that the medical resources of the Army would necessarily be limited by the available supply of physicians and by the necessity of dividing that supply fairly between military and civilian needs and (2) that, without careful allocation of the medical personnel available for military needs, results could not be expected commensurate even with the restricted supply of physicians.

The problem which thus presented itself was solved in two ways: 1. Consultants Divisions were created representing the major divisions of medicine (medicine, surgery and neuropsychiatry) and were charged with the evaluation of the professional qualifications, that is, the medical competence, of the available personnel. 2. To each division was given the additional responsibility of so recommending the assignment of available specialized personnel that each man would be used to the best advantage in his particular field.

The Consultants Divisions of the Surgeon General's Office developed a single basic policy, namely the assignment of specialized personnel at such places as specialized needs would be likely to develop, and, vice versa, the concentration of patients with specialized clinical needs into centers in which they could be treated by specialized personnel. The placing of trained surgical teams in forward areas in the zone of combat is an illustration of the first phase of this policy. The creation of specialized centers for tropical disease, neuropsychiatric disturbances, neurologic surgery, chest surgery, plastic surgery, amputations and the like is an illustration of the second phase.

This, however, is the brighter side of the picture. The darker side is the wastage which inevitably occurred in spite of the endeavor to use the limited supply of medical personnel to the best advantage. The very constitution of our military establishment required, and still requires, the inefficient and extravagant provision of separate medical installations for the Army, the Navy, the Air Force and the Veterans Administration. Often these separate facilities were, and still are, literally side by side. Each installation was, and still

The opinions and views set forth in this article are those of the writer alone.

is, provided with a more liberal allowance of beds than its census of patients has ever required with the exception of certain hospitals, particularly in the later months of the war. Each installation was, and still is, usually staffed with adequate numbers of medical personnel, though many hospitals were, and are now, inadequately staffed from the standpoint of medical efficiency and specialized competence.

The end of active fighting has brought this whole problem sharply into focus. The war has multiplied the medical responsibilities of the nation. It has produced many thousands of sick and wounded men who under normal circumstances would have been subject only to illnesses and injuries likely to occur in perhaps the healthiest of all age groups. Some of these must be cared for in hospitals for many years to come. To the care of these casualties must be added the care of illnesses which normally occur in any large civilian population. The population of the United States, it should be added, has increased by some five million persons during the war. It should also be added that the standard of medical care expected by the public has risen in the course of the war, and that a high standard will be taken for granted for men released from the armed forces who received such care during their period of service.

The medical resources of the country are simply not adequate to meet the demands for medical care as they at present exist. The supply of physicians is not great enough numerically to provide for a high standard of medical care for both civilian and government requirements and at the same time to compensate for the waste in medical personnel and facilities which the present system permits.

From the standpoint of specialized medical competence the deficit is even more glaring than it is from the standpoint of numbers, especially in view of the highly specialized nature of many combat injuries and diseases still to be cared for. There are in the United States today some 160,000 practicing physicians, of whom only slightly more than 20,000 are certified by the various specialty boards as qualified in their chosen fields. The number of physicians who are eligible for certification and who have not taken the trouble to secure it is probably so small that those certified by the various boards may be assumed to represent the totality of competent specialists in the United States today.

During the war the weight of military authority, exercised through the Consultants Divisions, saw to it that the specialists in the Army and within the limits of the authority of the Surgeon General were placed where their competence could be most effectively utilized. When the emergency is at an end, however, almost all of these specialists will return to private civilian practice, where, in spite of the heedlessness with which the general public selects its medical advisers, competition will largely determine their distribution. The government, on the other hand, will find itself confronted with an extremely serious situation. It will be required to provide medical care for large numbers of men with diseases and injuries requiring specialized management, while at the same time it will have few, if any, specialists to care for them.

The Veterans Administration for many years to come will urgently need such specialized personnel. It is not necessary to go into the details of how good or how bad the administration's care of its sick and wounded has been in the past. The ability of its personnel can be promptly determined by an investigation as to how many specialists certified by the various specialty boards it has on its staff at this time and what plans, if any, it has made to secure qualified personnel in the future. The categories of required medical care and an optimum provision for them may be outlined as follows:

1. Patients who require prolonged supervisory therapy, including convalescent and custodial care for chronic conditions. They would be treated in permanent veterans' facilities and would be subdivided into two groups: A, those requiring no specialized forms of treatment, who could be cared for by nonspecialized personnel, and B, those requiring highly specialized treatment for such conditions as tuberculosis, arthritis and neuropsychiatric states. The latter groups could be concentrated in establishments designated for their special needs, preferably situated near civilian medical teaching centers, where civilian specialists could share in their treatment.

2. Patients who require shorter periods of observation and treatment for acute conditions. They could be treated in civilian hospitals throughout the country designated for the purpose, by staff physicians who would be selected on the basis of certification by the various specialty boards.

Fees for hospitalization and for medical care would be paid by the Veterans Administration at generally accepted rates. Incidentally, outpatient services established on this basis would have many advantages.

The plan outlined would do away with the present duplication and waste of government medical installations and is the more justified since transportation is no longer part of the medical problem. Trains, automobiles and airplanes make central installations as practical as they are desirable.

This plan would also utilize to the fullest the available supply of specialists. That supply, it should be emphasized again, cannot be greatly increased within the immediate future. The number of medical graduates will remain limited because the number of medical schools is limited and for reasons of both finance and personnel cannot immediately be increased. The number of medical specialists is even less likely to be increased to any great degree within the immediate future, partly because the facilities for specialized training are even more sharply limited than are the facilities for undergraduate medical education and partly because of the military policies which curtailed the training of specialists during the war. Furthermore, though space does not permit detailed discussion of this aspect of the problem, it should be pointed out that on both government and civilian physicians there rests a continuing obligation to carry on scientific research, without which advances in medicine would come to an abrupt halt.

At the present time Congress is interesting itself in the provision of adequate medical care for the whole nation, and with that objective no one can reasonably quarrel. But it seems equally reasonable to suggest that before embarking on new and untested schemes, which would require the creation of large numbers of new positions and the expenditure of large amounts of money, the government should take the practical step of doing away with the extravagance and inefficiency in the medical services under its immediate control. The waste and inefficient application of our limited medical resources should no more be tolerated than should similar extravagance in the management of such physical resources as coal and oil and iron. It

also seems reasonable to demand, now that the military emergency is over, that the government make some provision either for attracting into federal service an adequate number of medical specialists or for securing the services of civilian specialists, by the plan proposed or by some other means, to care for the thousands of casualties who will require specialized management and who cannot be adequately cared for without it.

These steps, however, do not constitute the chief medical problem which confronts this country. They represent merely an approach to it. The basic problem is, paradoxically, the realization that there is a medical problem. So far that has not been done, or at least has not been done openly. For this lack of public recognition there are perhaps two reasons. The first is the almost universal failure of federal authorities to accept a concept of medical service which includes specialized as well as generalized care. The second is the fear on the part of many physicians that a well organized federal medical service would militate against the best interests of the profession. That fear is baseless. Indeed, the profession will be derelict both in its duty to the country and in the promotion of its own interests if it does not foster such a service.

Once the existence of the problem has been recognized, the first step toward its solution would be an analysis of the medical resources of the country in relation to its medical needs, civilian as well as federal, research and educational as well as purely clinical. The analysis of the federal needs should be on the basis of the needs of all its services, Army including Air Forces, Navy, Veterans and Public Health, integrated into an overall pattern and stemming from a single general agency. Not only is the present system uneconomical financially and wasteful of personnel and facilities; it actually discourages the attainment of higher standards of medical care.

An analysis such as is proposed should be made by a board appointed on the highest level. Its function, should be limited to fact finding and recommendation. Its membership should be composed of both civilian and government medical and administrative personnel. The civilian component should represent educational and research as well as clinical interests, and there should be due representation from the major medical specialties. The government component should include the various branches of the armed services, the Veterans Administration and the Public Health Service. The chairman of the proposed board would necessarily have administrative ability, and his past experience should be such as to make him fully aware of all the phases of the problem without, however, personal entanglement in any of them. He should be a man possessed of knowledge, wisdom, imagination, perspicacity and, above all, courage.

The appointment of this board, and even its report and recommendations, will not, of course, solve the national medical problem. It will, however, make clear what the problem is, both absolutely and in relation to the medical resources of the country. At the present time that knowledge does not exist, and, until the exact nature of the problem is clear, attempts to solve it are little more than gestures in the dark. Indeed, attempts to solve it can be actually harmful, in that they are likely to result in further dissipation and misuse of the numerically limited medical resources and the still more limited specialized medical resources which now exist to meet both the federal needs and the civilian needs of the whole country.

X-RAY BURNS RESULTING FROM FLUOROSCOPY OF GASTRO-INTESTINAL TRACT

REPORT OF FOUR CASES INCURRED IN ONE DAY

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The widespread use of small shock proof and "ray-proof" x-ray units in connection with military and industrial work is well known. Less well known is the fact that these units are just as capable of producing serious burns in both patients and operator as were the old fashioned "exposed" units of a generation ago. Indeed, many of them are more apt to be dangerous for the simple reason that, being portable and shock proof, they can be brought much closer to the patient than could the older, heavier or non-shock proof units. The lack of adequate distance between the x-ray tube and the patient's skin is one of the chief sources of danger, few persons recollecting that the intensity of output varies inversely as the square of the distance.

The accompanying table will illustrate the importance of sufficient distance between tube and patient in x-ray work of any type: The factors are the average fluoroscopic ones of 75 kilovolts and 5 milliamperes, with filter of 0.5 mm. of aluminum.

Most small portable x-ray units are customarily operated at from 60 to 80 kilvolts and at from 3 to 5

Distance, Output and Erythema Time

Distance (in Cm.) of Patient's Skin from Focal Spot of Tube	Output (In Roentgens per Minute) Measured in Air	Erythema Time (in Minutes) if Exposure is at One Sitting or at Closely Spaced Sittings
10 cm.	250 roentgens	1 minute
25 cm.	40 roentgens	6 minutes
50 cm.	10 roentgens	24 minutes

milliamperes. Variation of these factors produces the following influence on x-ray output:

Increase of 10 kilovolts in voltage increases the output approximately double.

Increase of milliamperage increases the output in approximately direct ratio (i. e. an increase from 3 milliamperes to 6 milliamperage doubles the x-ray output).

If three factors—adequate distance, reasonable voltage and low milliamperage—are borne in mind the average operator is not likely to cause serious damage, except in connection with search for foreign bodies and the reduction of fractures. Experienced radiologists employ the fluoroscope sparingly and then only with very small beams (say 3 inches square) in aiding the search for foreign bodies. Since the vast majority of metallic foreign bodies are innocuous, most surgeons refrain from adding insult to injury by exploring for them; therefore the problem of burns from fluoroscopic aid in foreign body removal is properly small. Unfortunately the same cannot be said for the reduction of fractures. Despite the pleading of experienced orthopedists, many physicians are prone to use the fluoroscope during (instead of briefly after) the attempted reduction of fractures. Intent on examination, the seconds become minutes before the well intentioned operator has realized it, and the safe or tolerance period of fluoroscopic observation has been exceeded. The skin of the patient

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and, too often, that of the operating surgeon, has been irreparably damaged. Sometimes the subcutaneous tissues, muscles and even bones have been permanently injured.

Less well known than the foregoing types of damage is skin damage incidental to gastrointestinal fluoroscopy. Isolated cases have been noted by many observers, but a group of 4 cases produced by a single examiner in one day must be quite rare. As an example of an isolated incident the following case may be reported:

A woman was referred for consultation on account of alleged diverticulitis of the duodenum. She had a rectangular area of skin damage about 10 by 15 cm. on the skin of her back over the right upper lumbar area. This was reddish, somewhat indurated and intermittently itching and painful. She stated that her former physician had told her she had three diverticula arising from the distal duodenum; he became so interested in her case that he demonstrated them to some colleagues, to his office nurse and to himself repeatedly over a period of a few days. As a result she incurred a serious though not permanently disabling x-ray burn.

The four cases occurring in one day developed under the following circumstances:

In May 1944 a group of young male patients were in a small military hospital in the Southwest Pacific area. The officer in charge of the medical patients decided that 8 of them needed x-ray examination of the gastrointestinal tract. He employed a small portable x-ray unit and a detachable head fluoroscope. No metal guard or cone was apparently placed on the x-ray tube housing. Four of the patients were examined for a fairly long period, up to perhaps ten minutes each. An average of three films was made in each case.

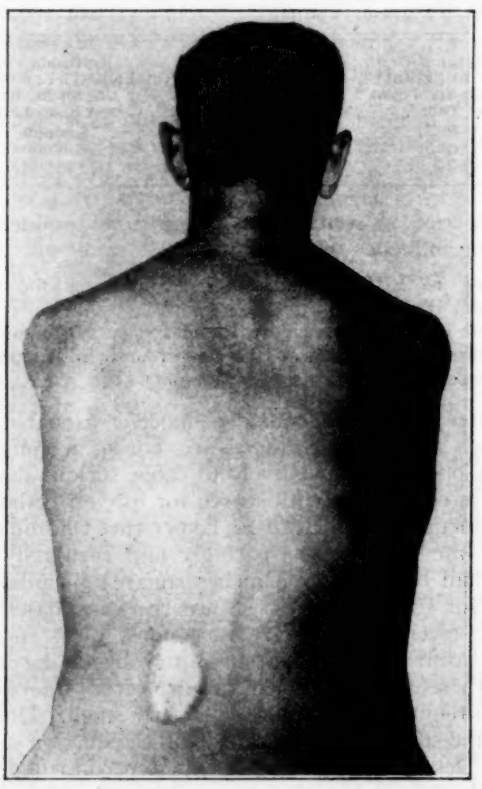

Fig. 1.—Full view of atrophic lesion of skin and subcutaneous tissues following a single gastrointestinal examination. The physician used a small shock proof x-ray unit with head fluoroscope. This photograph and the one from which figure 2 was reproduced were made eight months after the injury (which took about four months to heal). Three other patients were similarily burned with the same unit on that day.

One week later these 4 patients developed patches of "sunburn" on their backs about the midlumbar area. Blisters developed and broke spontaneously after three days. A raw painful skin surface about 5 cm. in diameter was left. One additional patient had an erythema and a few small blisters but did not develop any exfoliation or noteworthy pain.

The 4 patients were kept in the hospital for a period of approximately two months, receiving daily dressings of a white salve and mild sedation for pain. The lesions were quite painful at times (the pain being described as drawing and sharp). After two months 3 of the patients were discharged in care of the medical officer near their former activity, and the fourth was kept for an additional month. One of the 3 cases was subsequently skin grafted. The case illustrated herewith required further dressings for two months, at the end of which time the lesion healed up. The patient lost about 10 pounds (4.5 Kg.) in weight and developed (he claims) intermittent nocturnal backache in the lumbar area after the incident.

Fig. 2.—Close-up view of lesion.

Examination at the time of this report, eight months after the original fluoroscopic injury, reveals a pale, whitish pink, ovoid area of atrophic skin in the left posterior lumbar area measuring 6 by 5 cm. It shows some fine central telangiectases and a periphery of dark brown pigmentation, is adherent to the underlying tissues and is partly devoid of hair. Its center is 4.5 cm. to the left of the midline and 2 cm. above the crest of the ilium.

Brief fluoroscopic examination of the upper gastrointestinal tract (performed with the patient's ventral surface nearest the tube) discloses a deformed duodenal bulb, presumably secondary to an ulcer but without visible crater at this time. The site of the burn corresponds to the greater curvature of the distal third of the stomach, an odd and inexplicable location (except in the unlikely event that tube housing itself was defective in one small area). Films of the lumbosacral spine disclose no evidence of radiation osteitis. Clinically there is no limitation of spinal movements, and except for the preexisting gastrointestinal complaints the patient is essentially well.

All 4 patients have been reassured and have been warned to avoid unnecessary exposure to radiation of any type over the involved skin area and to be careful about any skin abrasions that might develop there.

COMMENT

The series of fluoroscopic burns reported herewith could have been prevented by the following simple measures:

(*a*) The use of a safe distance (12 to 18 inches) between the x-ray tube and the nearest portion of the patient's skin.

(*b*) The use of a filter (1 mm. of aluminum or equivalent) in the x-ray beam.

(*c*) The use of proper speed or dispatch in examination (not over three minutes of actual exposure in any examination period; not over four such periods in a month).

(*d*) Adherence to standard safe factors in operating the fluoroscopic unit (voltage about 75 kilovolts, current about 3 milliamperes, beam rarely larger than 6 inches square and usually half that size, and above all proper preparation of the examiner—dark adaptation of the eyes for at least ten full minutes before commencing any fluoroscopic work).

SUMMARY

During gastrointestinal fluoroscopic examination by a physician (not a specialist) 4 patients received serious and temporarily incapacitating burns of the skin over their lumbar area, all in a single day. They were disabled for periods of three to four months, and have permanent skin and soft tissue changes in the affected areas.

Any x-ray unit is a dangerous weapon, but the small portable x-ray unit in the hands of those unfamiliar with its hazards is perhaps the most dangerous of them all, especially when used for fluoroscopy without cone or guard.

PSYCHIATRIC ORIENTATION OF THE ALCOHOLIC CRIMINAL

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Does alcohol inhibit or release aggressive drives and damaging activities against society that result in criminotic behavior? This problem has been studied and discussed intensively by many investigators, but the evidence to date is insufficient for the conclusions to be clearcut or definitive. In general it has been our experience that criminal offenses against society are committed by individuals with poorly integrated personalities, emotional instability, conflicts with the environment and frustration; these are also found in many alcoholic addicts whose drinking is symptomatic of their inability to adjust themselves realistically to the environment and its demands on them.

One factor is clear, however; alcohol, pharmacologically, acts as a depressant on the nervous system resulting in relaxation (to varying degrees and extents) of judgment and control so that underlying forces—the personality dynamics—find a more direct mode of expression. While such underlying forces may be of a passive, *laissez-faire* nature as well as of an aggressive, disruptive one, the general result of the loosening of conscious control is the release of *id* urgings, in themselves amoral in tenor. Both practically and theoretically the response of the individual to alcohol is the response of the total personality, comprising the emotional maturity level and intellectual and physical endowment-equipment functioning in a specific environment and stimulated by specific environmental situations that activate internal reaction behavior patterns. This applies just as pertinently to the noncriminal as to the criminal alcoholic addict but, in contrast to the case of the social drinker, the effects of even slight loss of control is a hazard to the criminal (prison inmate, the parolee or the released convict) which the average social drinker does not face.

The individual who has a criminal record, if he faces reality, one of the prime objectives of modern penology, recognizes that "rightly or wrongly" society has judged, not interpreted, his behavior. Society rarely accepts legal justice, trial, incarceration and release at the end of the sentence as completely canceling the initial provocation and crime. It would be most unrealistic to expect such an attitude. Moreover, and as unrealistically, the criminal rarely seeks any deeper solution to his behavior, past and future, than that imposed by the prison sentence and thus on release frequently becomes recidivistic. Objectively, both society and the criminal are at fault in this shallow understanding of, and ostrich-like attitude to, psychologic factors involved in their mutual conflict. Because the results of the conflict affect the individual more painfully, one of the objectives of scientific minded and enlightened prison personnel should be a more than superficial insight into his difficulties with the end result that the criminal will develop a better understanding of the motivations that led to the commission of his unlawful acts and come to the blunt realization that he must in the future expect more of himself than of others and not feel that the world is to blame if he does not do his full part, and more.

Modern students of criminology, in their stress on the part that society plays in crime causation, would seem to be on the wrong track as far as the rehabilitation of the individual criminal is concerned. No matter how right or wrong society is, the delinquent must recognize that the majority of people do not commit crimes and that his criminal behavior is definitely indicative of underlying personality difficulties, characterized in part by an immature approach to life. The prisoner must be made to accept the fact that fundamentally it is his personality malintegration and attitudes that need correction; so long as he inwardly feels persecuted and belligerent, so long will his ultimate conduct acts continue to bring him into open conflict with the laws of society. The basic situation remains the job of becoming a respected and self-respecting individual, and this can be done only by the active cooperation of the individual. When he realizes that the job can be done and is worth doing, he has traveled the most difficult part of the road to rehabilitation.

The prisoner, and those working with him, must be aware of and accept these facts if he is to succeed in reintegrating himself with the community. He must understand that he will be on probation for a considerable period of time; that his actions will be closely scrutinized; that society will rebuff him and in some instances be frankly unjust, primarily because society still fears that he may regress to criminal actions.

The individual who has engaged in criminal behavior must, as a consequence, be prepared to meet with hostility and be taught how to meet this situation without becoming embittered and relapsing into earlier patterns of defensive aggression. He must become emotionally mature, or more mature than he was. If he fails to accept this, or if in a childish reaction of unthinking rage he strikes back at real or imagined provocation, it is he who will suffer.

So far as drinking is concerned, the prisoner should understand the far reaching effects of alcohol. If he drank before incarceration, if drinking was in any way associated with the planning or perpetration of his criminal acts, he should never drink again. Old habits of habitual reaction die hard, and under the influence of alcohol previous aggressive asocial forces may find easy expression. Once he makes a misstep under the influence of liquor, even if his conscious intentions were of the best, he finds himself back where he started from and burdened with intensified feelings of failure and self destructive emotions.

Drinking at any time, even for the social, controlled drinker who can stop at will, always leads to a temporary relaxation of judgment, discretion and control. We do not need scientific research to acquaint us with this fact. Alcohol, as stated, acts as a depressant on the nervous system: the quantitative and qualitative results depend on factors that vary between individuals and in the same individual at different times, owing to fatigue, sugar metabolism and psychologic state, including mood, thought and specific stimuli. Physiologic changes of functioning include poorer coordination of thought and muscular action, diminished sharpness of sensory perception and delayed and weaker motor performance with accompanying increase of error. Disregarding individual personality dynamics of alcoholism as a psychiatric illness symptom, the physical effects of alcohol are not conducive to controlled behavior, nor are its effects in any way predictable.

Alcoholism as a psychiatric abnormality is symptomatic of an underlying personality illness or disorder and must be treated as a psychiatric problem. That the alcoholic addict does not stop drinking in spite of painful experiences which include loss of job and prestige, physical torment and other related miseries should be adequate evidence that underlying factors are literally driving him to drink and that he is psychiatrically ill. No emotionally healthy individual deliberately does that which causes him to suffer, provided he is aware that suffering will result from such behavior. The alcoholic addict is, therefore, either unaware, is not sufficiently aware or does not want to be aware of the serious harmful consequences of his drinking to do anything constructive about his addiction. The reasons for this lack of insight are to be found in the unconscious and may be associated with such defined psychiatric groups as the feebleminded, the organic, the psychopath, the psychotic and the neurotic. Physiologic factors involved include cell changes and lowered resistance to the drug.

Alcoholism, uncontrolled drinking, leads to the following reaction types: acute pathologic intoxication with stupor, excitement or convulsions; acute and chronic alcoholic hallucinosis; delirium tremens; pronounced paranoid development; Korsakow's psychosis; mental deterioration. There may also be encephalopathies (brain lesions and organic changes) and neuropathies, including polyneuritic features and also, with the aforenamed reaction types, associated with avitaminotic conditions resulting from inadequate nourishment while drinking.

In general, alcoholic addicts may be classified into the following distinct groups: 1. Those who because of constitutional inadequacies (genogenic) are unable to meet life responsibilities and in addition to their drinking habits have other poor life habits. These individuals may eventually become deteriorated or asocial, requiring permanent mental hospitalization. 2. Those who are not too strongly endowed intellectually and emotionally and who suffer psychic frustration with underlying psychiatric disorders (manic depressive swings, schizophrenic reactions) which cause them to seek escape from life reality by means of alcohol. 3. Those who drink to flee from unpleasant life situations they cannot or do not wish to face and meet—the neurotic or psychogenic personality. 4. Those who drink to relieve various combinations of feelings of inadequacy, self consciousness, sexual maladjustment and the like. 5. Those who drink to narcotize physical or psychic pain. 6. Those who as a result of habit plus time and body changes and added strains and griefs of life develop from social drinkers into alcoholic addicts.

The dynamics of personality motivation which may be found in any of these groups are summarized as self pampering tendencies illustrated by a refusal to tolerate at all any unpleasant state of mind; a drive for self expression without the resolve to take the practical steps to attain it; a more than usual craving for excitement and pleasure of the senses; a habit of sidestepping duties and obligations leading to the habit of substituting the rosy anesthesia of alcoholic day dreams; a definite insistent need for the feeling of self confidence, self importance, calm and poise that some temporarily obtain from alcohol.

It is also our conviction that alcoholism is evidence of latent or overt homosexuality as medically defined, or of self destructive tendencies and deep lying anxieties, hostilities and tensions stretching far back to infantile formation of attitudes, sentiments and interpersonal relationships in which identification and imitation play a decisive role. Contrary to popular opinion, science has no proof that alcoholism is hereditary, although some individuals with an alcoholic ancestry may have lowered resistance or be more sensitive to alcohol. Social inheritance involving the identification and imitation mechanisms would seem to be the basic factors, not heredity as such.

Narcotization of anxiety is a major factor in the misuse of alcohol. In some cases this anxiety is the result of traumatic experiences in early childhood which the personality was unable to assimilate, while in others it may be due to unresolvable conflicts. Other types of personality makeups that seem to require the narcotization escape device include the tense, perfectionistic, worrisome individual; the individual who has a vague inner restlessness and feels himself to be a bystander, not a participant, in life; the emotionally immature individual, and the individual who is consistently inconsistent, whose main characteristic is that of unreliability—the total or partial psychopath.

PSYCHIATRIC THERAPY

Individual alcoholic therapy should begin, therefore, with a careful examination to determine the "type" of drinker, the personality makeup and the presence or absence of serious psychiatric or neurologic reactions in order to determine whether the patient should be placed in a mental hospital or on a health farm or be treated by regular office visits. The acutely intoxicated individual should, obviously, be placed in a mental hospital until the toxic condition has subsided and the patient is accessible to psychiatric examination. Psychiatric therapy consists of five separate but interrelated steps: examination and diagnosis; placement (hospital, farm, office); medical and psychiatric treatment; reeducation; continuous lifelong follow-up.

With all except the acutely intoxicated patient the usual psychiatric procedure is employed, including complete life history, neurologic and mental status surveys and personality and intelligence tests. It is well to obtain objective data from a friend or relative of the patient to provide factual information about the nature and extent of the drinking and resultant behavior changes. Personality and intelligence tests are of definite value in diagnosis and personality evaluation, especially when individuals are unaccompanied and no objective data can be immediately ascertained. Of these tests the Rorschach examination is the most useful and reliable in making a differential diagnosis, gaging the level and quality of emotional maturity, and in profile sketching the personality makeup of the individual.

Therapy and reeducation of the alcoholic patient, regardless of his place of treatment, is conducted along the following lines: Regular visits or interviews in which distributive analysis and synthesis allows the patient to ventilate and learn how to objectify his underlying stresses and tensions, interpersonal relationships and attitudes, goals and strivings, while at the same time following a regular daily routine (self imposed or controlled by the environment) and, through discussion and observation, to develop new insight, views and values. In this respect the benefits of socializing in the farm or hospital group are very important suggestive factors.

The goal of treatment is total permanent abstinence, and therapy is organized to achieve this by reeducating the individual, helping him to establish new habits of living, thinking, action and reaction to excitement, disappointment or out and out frustration. The nature of his drinking problem is explained to him and discussed by using specific examples chosen from his own life history and including dream material, present conflicts and so on. Simultaneously, certain fundamental psychologic facts are reviewed to help the patient acquire enough knowledge to help himself.

Every patient presents an individual problem, and the treatment is approached from this angle. One of the greatest factors in successful rehabilitation of the alcoholic addict lies in the interpersonal relations of the patient and the physician, with general principles subordinated to the individual needs of the patient. Other necessary factors are the careful selection of voluntary patients with undamaged nervous system; the personality of the therapist, who should be kind but firm; time; suggestive influences and full cooperation of friends and family; lifelong follow-up. It must again be stressed that the alcoholic addict is a sick person and that his addiction and its causes extend over a long period of time. Thus his cure must be thought of as similar to the healing of tuberculosis scars, depending on his keeping in good mental and physical health. It is sound, practical, common sense for the ex-tuberculous patient to check with his physician periodically, and it is just as sound for the ex-alcoholic addict to do likewise. The crucial part of the treatment is to help the individual reach a level of emotional maturity which will enable him to live a relatively efficient, productive and contented life with kindly, tolerant, interpersonal relations and an inner poise and stability.

SOCIOLOGICAL FACTORS

Sociological factors play a definite part in the production of the anxieties, hostilities and frustrations which apparently produce a need in some individuals for the narcotizing effects of alcohol. America has never been known as a nation of teetotalers, and alcoholism is certainly not unique in our time. Records dating back to early colonial times show that many people were even then seriously alarmed by the alcohol problem, which they felt was directly connected with mental illness and crime. By the early part of the nineteenth century alcoholism had come to be recognized as a serious moral and cultural problem and gave rise to a temperance movement that was for a long while overshadowed by the problem of slavery but burst into full bloom after the war between the states.

England, to name but one country, during the eighteenth century had an almost universal problem of alcoholism of the worst sort because of economic pressures of the industrial revolution resulting in widespread pauperism, rapid urbanization and cruel economic inequality. We should not blind ourselves with the thought that mankind has always suffered in various ways and that nothing under the sun is new. America was not settled by the ruminative inaction of the alcoholic addicts; rather was it settled in spite of the near universal drunkenness of the frontiersman. The distillery and the saloon were the invariable accompaniments of the frontier settler (cf. the Whisky Rebellion) and they in turn called forth their inevitable accompaniment of the revival meeting and the temperance pledge.

Within the last quarter century the trend toward the more moderate use of alcohol has been definitely reversed and there is a decided increase of alcoholism in all groups and ages. Some statistical surveys set the figures currently at 600,000 chronic alcoholic addicts (this does not include those who have not been admitted to hospitals), 2,000,000 heavy drinkers and about 38,000,000 social drinkers. Excluding the nonscientific experiment of Prohibition, which blossomed from the work of various sincere and well intentioned groups, we have never until recently made any organized attempt to attack this problem on a medical or coordinated basis in spite of the thousands of arrests, admissions to city psychopathic and state mental hospitals, of accidents due to alcoholism and the testimony of social workers and reformers as to the damage to life, health and property due to alcoholism.

In England, where social problems were attacked publicly for many years, Fleming reported in 1937 an 80 per cent decrease in arrests for alcoholism over a twenty-five year period due, he felt, to:

1. Social legislation.
2. Labor receiving equal rights and equal responsibilities with capital and management.
3. Legislated restricted hours of sale of alcoholic beverages.
4. More diversion on an active participating level of the white collar and working groups.
5. Temperance societies, active social service work with the individual and the family unit.

While Fleming's reasons are a patent oversimplification of an England ruled by the Tory party, racked by the great depression, housed in horrible slums and honeycombed with slowly dying blighted areas, it is interesting to contrast his analysis with the present American scene:

1. Large mobile population groups with little family cohesion, tradition of residence or homogeneity.
2. No decided social legislation until recently; no definite public disapproval of drunkenness.
3. Labor receiving "equal rights" but, as yet, not equal responsibilities and little or no political representation.

4. No restricted hours of sale of alcoholic beverages except in some states.

5. Fewer socially utilized opportunities for diversion or creative recreation.

6. Due to Prohibition, temperance societies are held either in contempt, ridicule or fear, while our social service groups have, for the most part, limited their work to curative measures with acute alcohol problems.

Several states have now set up commissions to study and deal with the alcohol problem, and we feel that the results reported in England, Scandinavia and Switzerland should be considered in the overall approach. Mental illness, juvenile delinquency and criminality are, like alcoholism, partly derived from environmental situations, and also, like alcoholism, they are on the increase. We are not likely to see any decrease of the social tensions within the next few years. We are entering an era which will probably be more chaotic, disruptive and emotionally disturbing than we have ever known. Violent changes and dreadful physical and emotional conditions throughout the world will have to affect us in many ways.

Retrospectively we understand the effects of our national expansion, restlessness, heterogeneity, industrialism and historical growth on the incidence of alcoholism to be enormous, owing to mass and individual insecurity and change in nearly all spheres of life plus quantity and quality of mobile living.

Preventive measures on a broad basis should definitely, therefore, incorporate ways and means of helping to modify or change our social environment so that it will not tend to stimulate the production of anxiety and tension but rather will tend to provide relative security and support through healthy community living. Opportunities for such now exist in the mediums of parent-teacher association groups, adult education centers, civic organizations, and the like, but the general public is either uninformed or does not utilize these to the fullest extent. It is up to the leaders in all fields to act more vigorously to help bring a deeper participation and interest in such groups. Preventive measures must of necessity stress the recognition of early signs of emotional illness and provide facilities for prompt examination and treatment, as well as prophylaxis.

In specific reference to the problem of alcoholism, from the immediate practical point of view, we need to train more workers to treat the individual alcoholic addict; we need to set up more and more adequate facilities, such as hospital wards, psychiatric hospitals, reception centers associated with mental hygiene clinics at which patients and relatives could receive help through diagnostic, placement and treatment services being available.

We are on the road to achieving these goals and with the cooperation of all groups having the same purposes and with community and individual support and work we should accomplish some of our aims within the coming years.

Meanwhile it is definitely the obligation of all workers and educators to explain the fundamental facts of alcoholism to the community and to drive home over and over again that alcoholism is a symptom of a psychiatric disorder, illness or maladjustment; that the alcoholic addict cannot stop drinking at will and is different from other social drinkers; that he can be helped, treated and rehabilitated; that the alcoholic addict in contemporary America is partly a product of our culture and its inherited and present strains and tensions, and that in addition to treating the alcoholic individual we must help reorient our culture and social ways of thinking and living to a more decent, vital and spiritually productive level.

SUMMARY

The nonpsychotic nondeteriorated prisoner who sincerely desires to rehabilitate himself has, we feel, a splendid opportunity to take advantage of modern scientific psychologic knowledge that will enable him, practically, to help himself and others in understanding that criminal behavior and alcoholism are not only waste products of a society that does not care about the individual's welfare but also of individuals who do not care about the welfare of society.

If he wants to, the prisoner can by his behavior do much to stimulate sound reforms in thinking about these very similar personality reactions—criminality and alcoholism—and to support sound ways of helping prevent their incidence in such large numbers; for, since truth is never hackneyed to those who desire truth, "Actions speak louder than words" and "As we would have others be and behave so should we behave and be." Therefore the prisoner who understands that his criminal acts were the result of emotional instability and poor integration of his personality assets that precluded his feeling and being a part of the social group should understand that the use of alcoholic beverages would definitely reactivate these disruptive conditions; and he should for his own sake keep in mind that:

1. His period of being on trial extends beyond the prison sentence and parole: he must be prepared to meet with rebuffs in a mature manner of tolerance and forgiveness.

2. He, as an individual, has physical, intellectual and emotional drives which he must learn to control if he is to have any measure of "happiness" or inner security.

3. The use of alcoholic beverages (including beer and wine) always tends to relax self control and to set free any underlying forces. Whether or not he feels that he has an alcohol problem, he should never drink again. From the down to earth point of view, he should recognize that the average man or woman naturally tends to be overcritical of the criminal, and a discharged criminal who is known to drink will necessarily be thought of with less confidence and more distrust than the known nondrinker. Conversely, the discharged prisoner who does not drink is given more moral support by the community, and life is made considerably easier for him. There is here a definite choice the prisoner himself can make between the relatively easy and the relatively hard way of readjusting to and being accepted by the community.

CONCLUSION

Alcoholism in America is a serious national health problem; the problem of criminality is closely associated in the personality field with alcoholism; neither the alcoholic addict nor the criminal (provided there are no organic or deterioration changes) should be viewed as hopelessly beyond rehabilitation. Society must assume its responsibilities on a realistic basis to help provide environments that do not tend to produce retarded or warped personalities; and individuals themselves must take some responsible purposive action along these lines and not, in an infantile manner, expect the community or the state to administer to all their wants and desires.

ADMINISTRATION OF PENICILLIN BY MOUTH

WITH RESULTS IN THE TREATMENT OF GONORRHEA

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Many attempts have been made to administer penicillin effectively by mouth. Abraham and his co-workers,[1] in 1941 reported unsatisfactory results even when the penicillin was protected by a coating of phenyl salicylate but found that, when given through a duodenal tube, detectable levels were present in the blood for three hours. Herrell, Heilman and Williams[2] in 1942 stated that penicillin was destroyed by the acid of the stomach but that some absorption occurred when sodium bicarbonate was given conjointly. Powell and Jamieson[3] also reported that penicillin cured staphylococcic infections in mice when given in combination with sodium bicarbonate. Rammelkamp and his co-workers,[4] in two papers in 1943 confirmed the impression that oral administration was unsatisfactory, although duodenal absorption occurred, and showed that patients with achlorhydria absorbed the drug fairly satisfactorily. The Floreys[5] tested cellulose hydrogen acetate phthalate as an enteric coating but found that, while penicillin could sometimes be demonstrated in the blood, reliable therapeutic levels could not be assured, and also that administration by duodenal tube was unreliable. In 1944 Free and his associates[6] showed that, after large doses of penicillin by mouth, more antibiotic activity was demonstrable in the urine than when given together with sodium bicarbonate.

Libby[7] early in 1945 demonstrated the protective property of cottonseed oil against destruction by gastric acid of orally administered penicillin. At about the same time several other promising reports appeared. Little and Lumb[8] recommended giving penicillin with raw egg as a stabilizer after administration of sodium bicarbonate. McDermott and his co-workers,[9] using huge doses (350,000 units) of penicillin in water, achieved blood levels of 1 unit per cubic centimeter at one hour's time. Moses[10] obtained therapeutic effects when penicillin was taken in high concentration (20,000 units per cubic centimeter), but estimations of the blood level were not made. György and his co-workers[11] administered penicillin with 1 to 5 Gm. of trisodium citrate, with the attainment of blood concentrations of 0.2 unit per cubic centimeter after one hour. Charney, Alburn and Bernhart[12] also used trisodium citrate and other gastric antacids and were able to obtain urinary excretions of 18 per cent of the dose administered. Burke, Ross and Strauss[13] gave large doses (100,000 to 200,000 units) of penicillin in a double capsule, hardened by immersion in formaldehyde and alcohol, with resultant phenomenal levels of up to 10 units of penicillin per cubic centimeter of blood. Moldavsky and Hesselbrock,[14] also using 100,000 unit doses, coated the penicillin capsules with phenyl salicylate and produced blood levels of 0.75 unit per cubic centimeter at the end of thirty minutes. Paul and his co-workers[15] and Krantz, Evans and McAlpine[16] used aluminum dihydroxyaminoacetate as an antacid, with doses of 100,000 units of penicillin, or more, and successfully cured gonorrhea. With the same adjuvant Krantz, Evans and McAlpine,[16] using 100,000 units of penicillin, produced serum levels of 0.68 unit per cubic centimeter at three hours. Finally Loewe and others[17] further explored the possibility of rectal administration with cacao butter suppositories containing up to 1 million units of penicillin. Levels of penicillin in the blood as high as 0.77 unit per cubic centimeter were obtained.

Our initial experiences[18] with a wide variety of adjuvants and several enteric coatings suggest that there are three variables in the problem of the absorption of penicillin. The first is destruction by gastric acidity. The second is the rate of absorption from the upper bowel. Penicillin is so quickly excreted by the kidneys that absorption must be rapid if a measurable level is to be obtained in the blood. The third factor is destruction by penicillinase-producing organisms in the bowel.[19] This appears to be less important than the other variables for peroral administration, since the flora in the upper intestine is probably sparse. Also absorption of penicillin occurs from ligated loops of colon in the rat,[20] although to a lesser extent than from the duodenum. Results to be published elsewhere[21] show that in rabbits the same levels of penicillin in the blood follow injection of the agent into a branch of the portal vein as into an ear vein. This suggests that, if absorbed,

Technical assistance throughout was given by Doris W. Jenkins, Mary W. Cutting and Erl G. Woo.

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Part of the penicillin was supplied by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for experimental investigations, recommended by the Committee on Chemotherapeutics and Other Agents of the National Research Council, and by a commercial laboratory in a study to determine toxicity and effectiveness.

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penicillin is not more rapidly destroyed by the liver than by the tissues in general and therefore that hepatic destruction would not be an important bar to peroral use.

TABLE 1.—*Administration of Penicillin in Enteric Coating, with Adjuvant Given Separately*

Separate Adjuvant	Units of Penicillin	Enteric Coating	Maximum Blood Level of Penicillin (at 1 or 2 Hours) Concentration, Unit per Cc.
15 Gm. of charcoal	20,000	"Seal Ins"	0
2 Gm. of sulfadiazine	40,000	"Cellulose"	0.05
6 Gm. of succinylsulfathiazole daily for 2 days	50,000	"Cellulose"	0
0.2 Gm. of trasentin	50,000	"Cellulose"	0
1 Gm. of acetylsalicylic acid plus 1 Gm. of sodium bicarbonate	50,000	"Enterab"	0.03
1 Gm. of acetylsalicylic acid plus 1 Gm. of sodium bicarbonate	50,000	"Enterab"	0.03
1 Gm. of acetylsalicylic acid	50,000	"Enterab"	0
1 Gm. of sodium bicarbonate	50,000	"Enterab"	0

This paper describes the results of a search for a satisfactory means for the administration of penicillin by mouth. Several combinations consistently produced low but measurable blood levels of penicillin and satisfactorily cured gonorrhea.

One hundred and ninety-one single trials of penicillin in various combinations were made on 50 physicians and technicians and 25 patients. Multiple doses, usually ten, with twelve different general types of combination, were given in seventy-seven trials to patients, most of whom had gonorrhea. Penicillin estimations were made on whole blood by the method of Wolohan and Cutting.[22] As this method uses whole blood, the levels indicated are about one half those obtained by most other methods, which employ plasma or serum.

SINGLE TRIALS IN ACHLORHYDRIC SUBJECTS

In an attempt to assess the importance of gastric acidity in the destruction of penicillin, the drug was given to 10 persons, most of whom had pernicious anemia,[23] in twelve trials. With a dose of 50,000 units,

22. Wolohan, M., and Cutting, W. C.: Simple Technic for Estimation of Penicillin in Blood and Other Body Fluids, J. Lab. & Clin. Med. **30**: 161 (Feb.) 1945.

23. Several of the patients were observed through the courtesy of Dr. Francis Hatch, resident physician, Laguna Honda Home, San Francisco Department of Public Health.

TABLE 2.—*Enteric Coating Enclosing Both Penicillin and Adjuvant*

Mixture of Penicillin Containing	Units of Penicillin Sodium	Enteric Coating	Maximum Blood Level, Unit/Cc.
A. Antiseptics			
Sulfadiazine 0.5 Gm. + charcoal 0.5 Gm.	50,000	"Cellulose"	0
Aeriflavine 0.1 Gm.	50,000	"Cellulose"	0
Hexylresorcinol 0.5 Gm.	50,000	"Cellulose"	0.2
Hexylresorcinol 0.2 Gm.	50,000	"Cellulose"	0
Hexylresorcinol 0.2 Gm.	50,000	"Enterab"	0
Hexylresorcinol 0.3 Gm. + lactose 0.5 Gm.	50,000	"Cellulose"	0
Heptylresorcinol 0.2 Gm.	50,000	"Enterab"	0
Gentian violet 0.1 Gm.	33,000	"Cellulose"	0
Gentian violet 0.05 Gm.	33,000	"Cellulose"	0
Gentian violet 0.03 Gm.	50,000	"Cellulose"	0.03
Gentian violet 0.05 Gm.	50,000	"Enterab"	0
Brilliant green 0.025 Gm.	33,000	"Cellulose"	0
Zephiran 0.5 Gm.	50,000	"Cellulose"	0
Zephiran 0.2 Gm.	50,000	"Cellulose"	0.05
Zephiran 0.1 Gm.	50,000	"Cellulose"	0.02
Zephiran 0.1 Gm.	50,000	"Cellulose"	0
Zephiran 0.1 Gm.	50,000	"Cellulose"	0
Zephiran 0.1 Gm.	50,000	"Cellulose"	0
Zephiran 0.2 Gm.	50,000	"Enterab"	0
Zephiran 0.2 Gm. + dextrose 0.5 Gm.	50,000	"Cellulose"	0
Zephiran 0.3 Gm. + lactose 0.5 Gm.	50,000	"Cellulose"	0
Methenamine 0.75 Gm.	50,000	"Enterab"	0.03
Methenamine 0.5 Gm.	50,000	"Enterab"	0.06
Methenamine 0.5 Gm.	50,000	"Enterab-cellulose"	0
B. Surface Tension Reducers			
Aerosol OT10 0.5 Gm.	50,000	"Cellulose"	0.03
Aerosol OT10 0.2 Gm. + lactose 0.5 Gm.	50,000	"Cellulose"	0
Bile salts 0.5 Gm.	50,000	"Cellulose"	0
Sodium alkyl sulfate 1.0 Gm.	50,000	"Cellulose"	0
Sodium alkyl sulfate 0.5 Gm.	50,000	"Cellulose"	0
Sodium alkyl sulfate 0.3 Gm.	50,000	"Cellulose"	0.02
Sodium alkyl sulfate 0.3 Gm.	50,000	"Cellulose"	0.02
Sodium alkyl sulfate 0.2 Gm.	50,000	"Cellulose"	0
Sodium alkyl sulfate 0.2 Gm.	50,000	"Enterab"	0
Sodium alkyl sulfate 0.5 Gm. + gentian violet 0.05 Gm. + $Al(OH)_3$ 1 Gm. + silica gel 0.5 Gm. + charcoal 1 Gm.	50,000	"Cellulose"	0
Sodium alkyl sulfate 0.5 Gm. + gentian violet 0.05 Gm. + $Al(OH)_3$ 0.3 Gm. + lactose 0.5 Gm.	50,000	"Cellulose"	0
C. Organic Solvents			
Ethyl acetate 0.8 cc.	50,000	"Enterab"	0
Ethyl alcohol 0.8 cc.	50,000	"Enterab"	0.03
Ethyl alcohol 1.0 cc.	50,000	"Enterab-cellulose"	0.03
Ethyl alcohol 2.5 cc.	50,000	"Enterab-cellulose"	0.12
Ethyl alcohol 2.5 cc.	50,000	"Enterab-cellulose"	0.03
Ethyl alcohol 2.5 cc.	50,000	"Enterab-cellulose"	0
Acetone 0.8 cc.	50,000	"Cellulose"	0.12
Acetone 0.8 cc.	50,000	"Cellulose"	0
Acetone 0.8 cc.	50,000	"Cellulose"	0
Acetone 0.8 cc.	50,000	"Enterab"	0.12
Acetone 0.8 cc.	50,000	"Enterab"	0.12
Acetone 0.8 cc.	50,000	"Enterab"	0.12
Acetone 0.8 cc.	50,000	"Enterab"	0.03
Acetone 0.8 cc.	50,000	"Enterab"	0
Acetone 0.8 cc.	50,000	"Enterab"	0
Acetone 0.8 cc.	50,000	"Enterab"	0
Acetone 2.5 cc.	50,000	"Enterab-cellulose"	0.06
Ether 0.9 cc.	50,000	"Cellulose"	0.04
Ether 0.9 cc.	50,000	"Cellulose"	0
Ether 0.9 cc.	50,000	"Cellulose"	0
Ether 0.9 cc.	50,000	"Cellulose"	0
Ether 0.9 cc.	50,000	"Enterab"	0
Propylene glycol 0.8 cc.	50,000	"Cellulose"	0.04
Propylene glycol 0.8 cc.	50,000	"Cellulose"	0
Pinacol 0.5 Gm.	50,000	"Enterab"	0
Triisopropanolamine 0.8 cc.	50,000	"Cellulose"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Cellulose"	0
Triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.03
Triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.03
Triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.03
Triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Enterab"	0
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.12
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.06
	Calcium Penicillin		
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.06
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.03
Triisopropanolamine 0.8 cc.	50,000	"Enterab-cellulose"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0

TABLE 2.—*Enteric Coating Enclosing Both Penicillin and Adjuvant—Continued*

Mixture of Penicillin Containing	Units of Penicillin Sodium	Enteric Coating	Maximum Blood Level, Unit/Cc.
C. Organic Solvents—Continued			
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.03
D. Salicylates			
	Sodium Penicillin		
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.06
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.06
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.06
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.12
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm. without penicillin	None	"Enterab"	0
Sodium bicarbonate 1 Gm.	50,000	"Enterab"	0
Sodium bicarbonate 1 Gm.	50,000	"Enterab"	0
Methyl salicylate 0.5 cc.	50,000	"Enterab"	0
Sodium salicylate 0.8 Gm.	50,000	"Enterab"	0
Sodium salicylate 0.8 Gm.	50,000	"Enterab"	0
Sodium salicylate 0.8 Gm.	50,000	"Enterab"	0
Sodium salicylate 1 Gm.	50,000	"Enterab"	0
Sodium salicylate 1 Gm.	50,000	"Enterab"	0.03
Sodium salicylate 1 Gm.	50,000	"Enterab"	0.03
Sodium salicylate 1 Gm. + triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.03
Salicylaldehyde 0.1 cc.	50,000	"Enterab"	0
Acetylsalicylic acid 1 Gm. + ethyl alcohol 1 cc.	50,000	"Enterab-cellulose"	0.06
Acetylsalicylic acid 1 Gm. + ethyl alcohol 1 cc.	50,000	"Enterab-cellulose"	0.12
Acetylsalicylic acid 1 Gm. + acetone 1 cc.	50,000	"Enterab-cellulose"	0.03
Acetylsalicylic acid 1 Gm. + ethyl acetate 1 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm. + methenamine 0.5 Gm.	50,000	"Enterab-cellulose"	0.06
Acetylsalicylic acid 1 Gm. + methenamine 0.5 Gm.	50,000	"Enterab-cellulose"	0.03
E. Protoplasmic Poisons			
Quinine sulfate 0.6 Gm.	50,000	"Enterab"	0.03
Quinine sulfate 0.5 Gm.	50,000	"Enterab"	0
Quinine sulfate 0.3 Gm. + propylene glycol 0.4 cc. + triisopropanolamine 0.4 cc.	50,000	"Enterab"	0
Quinine sulfate 0.3 Gm. + triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.03
Quinine sulfate 0.3 Gm. + triisopropanolamine 0.8 cc.	50,000	"Enterab"	0
F. Natural Oil			
Cottonseed oil 0.8 cc.	50,000	"Enterab" cellulose"	0
Cottonseed oil 0.8 cc.	50,000	"Enterab" cellulose"	0
Cottonseed oil 0.8 cc.	50,000	"Enterab" cellulose"	0
Cottonseed oil 0.8 cc.	50,000	"Enterab" cellulose"	0
Cottonseed oil 0.8 cc.	90,000	"Enterab-cellulose"	0
Cottonseed oil 0.8 cc.	90,000	"Enterab-cellulose"	0.03
Cottonseed oil 0.8 cc.	90,000	"Enterab-cellulose"	0.06
Cottonseed oil 5 cc.	50,000	None	0.03
G. Alkalis			
Trisodium citrate 1 Gm.	50,000	"Enterab-cellulose"	0
Trisodium citrate 0.75 Gm.	50,000	"Enterab-cellulose"	0.12
Trisodium citrate 0.75 Gm.	50,000	None	0.06
Trisodium citrate 0.75 Gm.	50,000	None	0.12
Sodium carbonate 0.1 Gm.	50,000	"Enterab-cellulose"	0.03
Sodium carbonate 0.25 Gm.	50,000	"Enterab-cellulose"	0.12
Sodium carbonate 0.5 Gm.	50,000	"Enterab-cellulose"	0.06
Sodium carbonate 0.5 Gm.	50,000	"Enterab-cellulose"	0.03
Sodium carbonate 0.5 Gm.	50,000	None	0.06
H. Miscellaneous			
Propadrine 0.05 Gm.	50,000	"Enterab"	0
Neostigmine 0.0075 Gm.	50,000	"Enterab"	0.03
Urea 5 Gm.	50,000	"Enterab"	0
Urea 0.75 Gm.	50,000	"Enterab"	0
Sodium hexametaphosphate 0.75 Gm.	50,000	"Enterab"	0
Sodium hexametaphosphate 0.2 Gm.	50,000	"Enterab"	0
Sodium hexametaphosphate 0.1 Gm.	50,000	"Enterab"	0
Congo red 0.5 Gm.	50,000	"Enterab"	0

given either in water or in a gelatin capsule, 3 of 6 subjects showed a blood level of 0.06 unit per cubic centimeter after one to one and one-half hours, while the other 3 had no measurable concentration. This showed that, although persons with anacidity might absorb penicillin, the levels that were obtained were not particularly high. Furthermore, other factors, such as absorption, must also be important, as some of the subjects failed to absorb it, even in the absence of acid.

Therefore, in six further trials, adjuvants were added to the penicillin to see if the absorption could be made more certain. A mixture of acetylsalicylic acid 1 Gm. with sodium bicarbonate 1 Gm. was used in four of the trials, with urea 0.6 Gm. and atabrine 0.1 Gm. in the other two, respectively. In all cases penicillin was absorbed, the average level in the blood at one to one and one-half hours being 0.06 unit per cubic centimeter.

Thus there is a further indication that destruction by acid, although perhaps it is of primary importance, is not the only factor limiting the usefulness of penicillin by mouth, and that the regularity of its absorption may be increased by adjuvants. This might be presumed to be particularly true in persons who have gastric acid, for even the best enteric coating is probably only a partial protection.

SINGLE TRIALS IN PERSONS WITHOUT GASTRIC ACHLORHYDRIA

An extensive survey of the absorption of penicillin in various combinations and with various enteric coatings was made in normal persons or patients without gastric achlorhydria. Most of the subjects were either fasting or at least two hours postprandial. The usual dosage of penicillin was 50,000 units, given in a size 00 gelatin capsule, although occasionally other dosages or forms of administration were used. The blood level of penicillin was usually estimated from three to four times, at one-half to one hour intervals. The maximum, which was usually at one hour, was the basis for comparison. Sodium penicillin was used throughout, except as noted. When it was thought that an adjuvant, also placed in the capsule, might destroy the penicillin, the penicillin was placed in a size 5 inner capsule. In many instances some form of enteric coating was applied to the outside of the capsule. These included "Enterab," a resin, dissolved in acetone, supplied by Abbott Laboratories, North Chicago, Ill.; a castor oil-shellac coating; solution of formaldehyde U. S. P. diluted 1:20 for five seconds followed by ethyl alcohol for five minutes; cellulose hydrogen acetate phthalate dissolved in acetone (hereafter called "cellulose"); a mixture of equal parts of the "Enterab" and "cellulose" solutions (hereafter called "Enterab-cellulose"; and "Seal-Ins," supplied by the "Seal-Ins" Laboratories, Los Angeles.

The results are grouped in the following five sections:

1. *Penicillin Without Adjuvant or Enteric Coating.*—Penicillin in a dose of 50,000 units was given in a single gelatin capsule to 1 normal subject and in a dose of 100,000 units to 3 others, with the following blood levels at one-half hour respectively: 0.12, 0.06, 0.06 and 0.03 unit per cubic centimeter. These levels are easily in the therapeutic range and support the statement of McDermott and his co-workers[9] that penicillin in water, in large doses, is readily absorbed.

To test the claim of Moses[10] that small amounts of penicillin in concentrated solution would be absorbed, 50,000 units of penicillin in 2.5 cc. of water was held in the mouth for thirty minutes, and on two subsequent occasions this amount was slowly swallowed. At no time could penicillin be found in the blood. As the latter two trials are in a sense an extension of the tests already described, it is seen that there is considerable variation in the absorption of unprotected penicillin.

2. *Penicillin Mixtures Not in Capsules.*—Seven trials on 4 normal persons were made with mixtures of penicillin and an alkali, adsorbent or antiseptic, as follows: 20,000 units of penicillin with 30 cc. of aluminum hydroxide gel; 20,000 units with 15 Gm. of sodium bicarbonate plus 5 Gm. of charcoal; 20,000 units with 30 cc. of cream; 80,000 units with 15 Gm. of silica gel; 50,000 units with 1 Gm. of sodium alkyl sulfate; 50,000 units with 50 mg. of gentian violet, and 50,000 units with 10 cc. of ethyl alcohol. In no case was penicillin demonstrable in the blood. This confirms the previously reported[24] poor success with large amounts of antacids given conjointly.

3. *Penicillin in Enteric Coated Capsules.*—Six trials in 5 normal persons were made in which the penicillin was protected by enteric coatings as follows: 20,000 and 50,000 units of penicillin in a gelatin capsule coated with "Enterab"; 20,000 units coated with castor oil shellac; 20,000 units with "Seal-Ins"; 20,000 units with "cellulose," and 50,000 units with "Enterab-cellulose." Only with the last preparation was absorption measurable, 0.03 unit per cubic centimeter of blood appearing at one hour and lasting for two and one-half hours. These results are in agreement with the early reports[25] claiming that enteric coating gave unsatisfactory results but are decidedly inferior to the results obtained with formaldehyde hardened[13] and phenyl salicylate coated[14] capsules reported recently. As shown in a later section dealing with continued administration, we have been unable to confirm the high absorption reported by Burke and his co-workers,[13] although our penicillin dosages were somewhat smaller.

4. *Penicillin in Enteric Coated Capsules, with Adjuvant Given Separately.*—Eight trials were made on 3 normal persons and 1 patient with the penicillin enclosed in an enteric coating and, separately, an adjuvant intended to promote absorption or protect the penicillin (table 1). A mixture of acetylsalicylic acid and sodium bicarbonate was moderately effective. Sulfadiazine also produced a moderate blood level, but part of this may have been due to the antibacterial action of the sulfonamide itself.

5. *Penicillin with Adjuvants in Capsules, Usually Enteric Coated.*—Most of the single dose trials which were made belong in this category. Penicillin was combined with several general types of agents, namely antiseptics, surface tension reducers, organic solvents, salicylates, protoplasmic poisons, a natural oil, alkalis and miscellaneous agents. Certain of the adjuvants obviously could be classified under more than one type. In the majority of trials the capsules were enteric coated. A total of 152 tests in over 50 normal subjects or patients was made, with results shown in table 2.

Of the antiseptics only methenamine was promising, and of the surface tension reducing agents only sodium alkyl sulfate and aerosol OT10 gave any absorption. This suggests that bacterial destruction is unimportant in the region where penicillin is released.

The organic solvents were more effective. Ethyl alcohol and acetone, in particular, gave occasionally good, though erratic, absorption. Triisopropanolamine, however, gave highly consistent and fairly adequate blood levels. In a dose of 0.8 cc. it often produced some nausea, but in doses of 0.5 cc. or less this was not present. The highly alkaline nature of triisopropanolamine (p_H 11) suggested that perhaps the effect was simply due to this factor and not to an effect on intestinal permeability. Triisopropanolamine slowly destroys penicillin when the two agents are in contact, necessitating a separate, inner capsule for the penicillin. Whether the alkalinity of this amine is responsible for the destruction or some other change in the penicillin was not determined. Inner capsule protection for solid alkalis, such as trisodium citrate, did not appear to be necessary.

A comparison of sodium penicillin with calcium penicillin was made in the triisopropanolamine series. The average blood level in twenty trials with sodium penicillin was 0.047 unit per cubic centimeter; with calcium penicillin in ten trials it was 0.018 unit per cubic centimeter. Because of the inferior showing of the calcium salt, only the sodium salt was used in the remainder of the trials.

Acetylsalicylic acid, especially when combined with sodium bicarbonate, was moderately effective in promoting the absorption of penicillin, but other salicylates were ineffective.

The protoplasmic poisons, such as quinine, and several miscellaneous agents were relatively ineffective.

In spite of the reported[7] efficacy of cottonseed oil, we obtained no absorption when the dose of penicillin was the usual 50,000 units, but 100,000 units gave satisfactory levels.

We were able to confirm, however, reports[26] stating that antacids, in particular trisodium citrate, were effective adjuvants. As sodium carbonate is a still stronger alkali, comparisons were made with this salt, without any significant difference from the sodium citrate.

The enteric coatings varied considerably in their action. With a large dose of penicillin (100,000 units) they may contribute little or nothing to the ultimate blood level. "Enterab" protected capsules (as we made them) usually disintegrated in the stomach (fluoroscopic evidence) about twenty minutes after ingestion, while uncoated capsules broke within ten minutes. "Cellulose" protected capsules were more durable and often did not break for one or two hours, and then not in the stomach. This would seem to be the exact type of protection theoretically desirable, but the results were uniformly less satisfactory than with a less resistant coating. Capsules coated with a mixture of equal parts of "Enterab" and "cellulose" usually disintegrated in the stomach or duodenum within thirty to forty-five minutes after ingestion. With continued administration, described in the next section, enteric coatings appeared to add slightly to the effectiveness of peni-

24. Herrell, Heilman and Williams,[2] Rammelkamp and Keefer,[4] Rammelkamp and Helm.[4]

25. Abraham, Chain, Fletcher, Gardner, Heatley, Jennings and Florey,[1] Florey.[3]

26. György.[11] Charney, Alburn and Bernhart.[12]

TABLE 3.—*Repeated Administration of Capsules of Penicillin; Individual Patients*

Adjuvant	Penicillin (Each Dose) Units	Enteric Coating	Average of 10 Blood Estimations, Unit/Cc.	Per Cent of Penicillin Excreted in Urine	Symptoms
None	50,000	None	0	13	Diarrhea
	50,000	None	0.024	6	None
	50,000	None	0.012	14	None
			(0.012)*		
	50,000	"Enterab-cellulose"	0	5	None
	50,000	"Enterab-cellulose"	0.015	2	None
	50,000	"Enterab-cellulose"	0.045	1	None
	50,000	"Enterab-cellulose"	0.021	1	None
			(0.020)		
	50,000	"Cellulose"	0.009	3	
	50,000	"Cellulose"	0	3	
			(0.004)		
	50,000	Formaldehyde	0.025	5	
				(5)	
None (patients had achlorhydria)	50,000	None	0.120	50	None
	50,000	None	0.011	12	None
			(0.065)	(31)	
Zephiran 0.1 Gm.	50,000	"Cellulose"	0	0	None
Acetylsalicylic acid 0.8 Gm. plus sodium bicarbonate 0.8 Gm.	50,000	"Enterab-cellulose"	0.013	7	Dizziness
	50,000	"Enterab-cellulose"	0.012	2	None
	50,000	"Enterab-cellulose"	0	1	None
	50,000	"Enterab-cellulose"	0.003	9	None
			(0.007)		
Ethyl alcohol 2.5 cc.	50,000	"Enterab-cellulose"	0.013	13	None
Acetone 2.5 cc.	50,000	"Enterab-cellulose"	0.026	22	None
	50,000	"Enterab-cellulose"	0	12	None
	50,000	"Enterab-cellulose"	0	10	None
			(0.003)	(14)	
Acetylsalicylic acid 1 Gm. plus methenamine 0.5 Gm.	50,000	"Enterab-cellulose"	0	1	Nausea
	50,000	"Enterab-cellulose"	0.006	3	Nausea
	50,000	"Enterab-cellulose"	0	1	None
			(0.002)	(2)	
Cottonseed oil 0.8 cc.	50,000	None	0.009	23	
	50,000	"Cellulose"	0.003	6	
			(0.006)	(15)	
Triisopropanolamine 0.8 cc. (A. Freshly made capsules)	50,000	"Enterab-cellulose"	0.045	13	Vomited once
Triisopropanolamine 0.8 cc. (B. Capsules made more than 1 day before use)	50,000	"Enterab-cellulose"	0.016	5	None
	50,000	"Enterab-cellulose"	0.003	8	Nausea
	50,000	"Enterab-cellulose"	0.013	7	None
	50,000	"Enterab-cellulose"	0.021	2	Vomited twice
	50,000	"Enterab-cellulose"	0.012	3	Vomited once
	50,000	"Enterab-cellulose"	0.015	6	Nausea
			(0.013)	(5)	
Triisopropanolamine 0.5 cc. or 0.4 cc. plus 0.4 cc. of propylene glycol. (A. Freshly made capsules, or penicillin enclosed in inner capsule)	50,000	None	0.022	11	
	50,000	"Enterab-cellulose"	0.039	..	Diarrhea
	50,000	"Enterab-cellulose"	0.042	4	None
	50,000	"Enterab-cellulose"	0.052	1	None
	50,000	"Enterab-cellulose"	0.018	15	Diarrhea
	50,000	"Enterab-cellulose"	0.065	4	None
			(0.038)	(7)	
	25,000	"Enterab-cellulose"	0.012	12	Weakness
	25,000	"Enterab-cellulose"	0.009	7	None
	25,000	"Enterab-cellulose"	0.009	5	None
	25,000	"Enterab-cellulose"	0.012	5	None
	25,000	"Enterab-cellulose"	0.024	10	None
			(0.013)	(8)	
Triisopropanolamine 0.5 cc. or 0.4 cc. plus 0.4 cc. of propylene glycol. (A. Freshly made capsules, or penicillin enclosed in inner capsule)	100,000	"Enterab-cellulose"	0.075	16	Weakness
	100,000	"Enterab-cellulose"	0.018	4	Diarrhea
	100,000	"Enterab-cellulose"	0.021	10	Diarrhea
	100,000	"Enterab-cellulose"	0.057	39	None
	100,000	"Enterab-cellulose"	0.090	11	None
	100,000	"Enterab-cellulose"	0.030	14	None
			(0.049)	(16)	
	50,000 (plus 0.6 cc. cottonseed oil)	"Enterab-cellulose"	0.045	1	None
Triisopropanolamine 0.5 cc., or 0.4 cc. plus 0.4 cc. of propylene glycol (B. Capsules made more than 1 day before use)	50,000	"Enterab-cellulose"	0.003	0	None
	50,000	"Enterab-cellulose"	0.025	..	Diarrhea
			(0.014)	(0)	
	25,000	"Enterab-cellulose"	0	8	None
	100,000	"Enterab-cellulose"	0	0	Dizziness
Trisodium citrate, 0.6 to 0.75 Gm.	50,000	None	0.03	23	None
	50,000	None	0.035	7	None
	50,000	None	0.027	2	None
	50,000	"Enterab-cellulose"	0.012	37	None
	50,000	"Enterab-cellulose"	0.012	37	None
	50,000	"Enterab-cellulose"	0.01	28	None
	50,000	"Cellulose"	0.024	7	None
	50,000	Formaldehyde	0.02	10	None
			(0.021)	(19)	
	100,000	None	0.048	11	None
	100,000	None	0.054	7	None
	100,000	"Enterab-cellulose"	0.063	6	None
			(0.055)	(8)	
	50,000 (plus 0.6 cc. cottonseed oil)	None	0.075	8	None
Sodium carbonate 0.5 Gm.	50,000	None	0.048	11	Vomited twice
	50,000	"Enterab-cellulose"	0.024	30	None
	50,000	"Enterab-cellulose"	0.021	15	None
	50,000	"Enterab-cellulose"	0.026	13	None
	50,000	"Cellulose"	0	17	None
			(0.024)	(17)	
	100,000	"Enterab-cellulose"	0.075	8	None
	100,000	"Enterab-cellulose"	0.054	16	None
	100,000	"Enterab-cellulose"	0.045	12	None
			(0.058)	(12)	
	50,000 (plus 0.6 cc. cottonseed oil)	"Enterab-cellulose"	0.040	30	None
	50,000 (plus 0.6 cc. cottonseed oil)	"Enterab-cellulose"	0.039	26	None
			(0.040)	(28)	

* Averages given in parentheses.

cillin-alkali combinations but prevented some gastric distress which the stronger alkalis otherwise caused.

The great number of unsuccessful trials, in spite of the fact that unprotected penicillin alone may be absorbed, requires explanation. Possibly some of the adjuvants destroy the drug, but this can hardly be generally true. Our trials with penicillin alone were mostly with higher doses, and it is probable that there would be many failures with single doses of 50,000 units of penicillin.

Many of the trials which failed to produce a demonstrable blood level gave urinary levels of several units per cubic centimeter. This strengthened our conviction that it was important to accelerate the absorption of penicillin in order to keep ahead of the urinary loss.

REPEATED ADMINISTRATION OF CAPSULES OF PENICILLIN

The single trials of penicillin in various combinations discussed in the previous section indicated which should be tried on repeated administration. The latter means of testing is more crucial, as in a test lasting over many hours the effects of food, state of mind, accumulation of the drug and cumulative toxicity of the adjuvant may be more easily evaluated.

Therefore the more promising agents and combinations were tried on repeated administration in patients. Of the 77 subjects, all but 6 were males, most of them with gonococcic infections. The usual course of administration lasted twenty hours, with the penicillin capsules being given every two hours. Blood was taken for the estimation of penicillin one hour after each dose. The total urine for the twenty hours of the trial, plus an additional four hours, was also collected and its penicillin content determined. The results are summarized in table 3, in which groups of comparable trials are averaged separately.

When penicillin was given without adjuvants, except enteric coating, in ten repeated administrations to 10 patients, the average blood level for the one hundred determinations was 0.015 unit per cubic centimeter and the average urinary recovery 5 per cent of the doses ingested. When no enteric coating was used, the average blood concentration was 0.012 unit per cubic centimeter, with "Enterab-cellulose" it was 0.020, with "cellulose" 0.004 and in a single trial with formaldehyde hardening 0.025. Thus, although there is considerable variation, with some total failures of absorption, it is seen that penicillin is absorbed moderately well in these doses (50,000 units) without adjuvants or enteric coatings and that a good enteric coating ("Enterab-cellulose" or "formaldehyde hardening") increases the degree of absorption, while too resistant a coating ("cellulose") interferes with absorption. It may be concluded that any combination containing 50,000 units of penicillin must produce an average blood concentration above 0.02 unit per cubic centimeter to surpass in efficiency the simple combination of penicillin and a light enteric coating.

The absorption in the 2 patients with gastric anacidity are revealing in showing that acidity alone is not the only determining factor, thus confirming the individual results in a previous section. In 1 patient the excellent absorption is according to expectation, while in the other the low values probably indicate poor penetration through the intestinal wall.

Results in 12 patients with zephiran, acetylsalicylic acid with sodium bicarbonate, ethyl alcohol, acetone, acetylsalicylic acid with methenamine, and cottonseed oil were irregular, and not outstanding. While fair absorption was occasionally demonstrated, the average values were lower than those with penicillin and a simple enteric coating. This may indicate that these agents actually interfere with the absorption of, or destroy, penicillin, but to us it seems more likely, considering also the early results with single doses, that in a larger series some of these combinations would prove to enhance absorption minimally. However, this is obviously of no practical help. We also have the impression, although confirmation is impossible, that the penicillin currently available (May 1945) produces somewhat higher blood levels than that of a year ago. Our trials with penicillin in simple enteric coatings have been recent, for the most part, and therefore may gain in comparison to trials of several months ago. Although the various brands have differed greatly in color and potency per unit weight, we have not detected any particular difference in the results of oral administration. The following brands have been used: Wyeth, Cutter, Pfizer, Lilly, Burroughs and Wellcome, Squibb, Commercial Solvents and Schenley.

The three final combining agents, triisopropanolamine, trisodium citrate, and sodium carbonate, gave much more satisfactory results, easily of clinical value.

Triisopropanolamine was used on 29 patients, and the conclusions are therefore based on nearly 300 blood estimations. The larger dose of the adjuvant, 0.8 cc., used initially, was discontinued because of frequent nausea and vomiting, which did not occur with one-half this dose. The addition of 0.4 cc. propylene glycol to the smaller dose of triisopropanolamine did not enhance the action and was therefore also discontinued.

The "Enterab-cellulose" coating was used in nearly all the trials, particularly as in single dose tests this appeared to lessen the likelihood of gastrointestinal irritation.

Taking only the results with the smaller dose of triisopropanolamine and with freshly made capsules, or those in which the penicillin was protected, the average blood concentration in six trials with 50,000 units of penicillin was 0.038 unit per cubic centimeter, or nearly twice that obtained with the use of the simple enteric coating alone. With 25,000 units of penicillin in each dose the average in five trials was 0.013 unit per cubic centimeter, showing that the larger dose enhanced the degree of absorption. In six trials with 100,000 units the average blood concentration was 0.049 unit per cubic centimeter, a value less than would have been expected if the blood concentration rose proportionately to the increase in dose. This suggests that a dose of 50,000 units may give the maximal relative absorption. Further trials would be necessary to establish this conclusively, as the urinary excretion from 100,000 unit doses was about twice that with 50,000 unit doses. The high variability of the antibiotic activity of the urines, however, precludes their acceptance as reliable criteria of absorption. Very likely the rate of destruction of penicillin in the urinary tract, and after collection of the specimen, depends on variables such as infecting or contaminating organisms and the temperature. We were unable to correlate the content of pencillin with the p_H of the urine.

The systemic toxicity of triisopropanolamine is negligible. It has been used for several years as an ingredient in sobisminol mass, a bismuth product for oral treatment in syphilis. Considerably more labor, however, is involved in preparing capsules in which the penicillin must be enclosed in a second, smaller capsule than in those combinations in which it can be freely mixed with the adjuvant.

Trisodium citrate as the adjuvant, in eight trials with 50,000 units of pencillin, gave an average blood level of 0.021 unit per cubic centimeter, or about one-half that when triisopropanolamine was used. In three trials with 100,000 units, however, the average was 0.055 unit per cubic centimeter, or slightly greater than with triisopropanolamine. A similar result was obtained with sodium carbonate, which is a stronger alkali than sodium citrate, more closely resembling triisopropanolamine in this respect. The average concentration after 50,000 units with sodium carbonate was 0.024 (five trials) and with 100,000 units 0.058 (three trials). Here the trend, at least, was toward doubling the blood concentration when the dose was doubled.

A comparison, then, of the results obtained with the three agents triisopropanolamine, trisodium citrate and sodium carbonate shows them to be of about equal efficiency in promoting the absorption of penicillin. With 50,000 units of penicillin, triisopropanolamine appears to give the best results, but with 100,000 units this superiority is not evident. This similar efficacy and the common characteristic of alkalinity suggest that it is solely this factor which is of importance in the action of these adjuvants. If triisopropanolamine has a direct action on the intestinal mucosa to increase permeability, other than that which any alkali might possess, it cannot be of outstanding importance. It is possible than any alkali, in addition to neutralizing acid, might effect intestinal permeability, but this action would not appear to be great.

The addition of small amounts of cottonseed oil to any of the three adjuvants just described did not give any great difference in absorption. Although it was felt that with penicillin alone, and with most adjuvants, a light enteric coating improved absorption and decreased irritation, this was not evident with trisodium citrate. This is important when penicillin capsules are to be made extemporaneously, as the process then becomes quite simple, as follows: Pack one-half the contents (50,000 units), or the entire contents (100,000 units), of a commercial vial of penicillin in a size 00 capsule, and then fill the capsule with trisodium citrate. Administer such a capsule every two hours.

RESULTS IN THE TREATMENT OF GONORRHEA

Fifty-three of the 77 patients treated with repeated doses of penicillin (table 3) had acute gonorrhea. The remainder suffered from various diseases (pyogenic dermatitis, prostatitis, cystitis, infected wounds, and so on), in which exact assessment of cure or improvement was impossible. Of the 53 patients with acute gonorrhea 38, or 72 per cent, were cured, as judged by three negative prostatic cultures at weekly intervals after treatment. Of the failures 4 were so counted because of inadequate follow-up. Of the remaining 11 failures 4 were the patients whose individual doses were 25,000 units (a total of 250,000 units for the entire course of treatment). Obviously this dosage is inadequate, although by intramusmular injection cure would seem assured. The remaining 7 failures were all with individual doses of 50,000 units (total 500,000 units for the course) and consisted of 1 with acetylsalicylic acid and sodium bicarbonate combination, 2 with triisopropanolamine (but penicillin not protected from adjuvant), 2 with sodium carbonate (but heavy cellulose coating on one), 1 with cottonseed oil and 1 with trisodium citrate.

Thus it is apparent that a total dose of one-half million units, prepared in one of the superior combinations, may be expected to produce a high incidence of cure in acute gonorrhea in the male, probably 90 per cent.

COMMENT

A survey of the problem of peroral absorption of penicillin shows that, although destruction by gastric acid, lack of intestinal absorption and destruction in the bowel by penicillinases are all theoretically of importance, the available adjuvants act primarly only on the first mechanism. Three alkalis, namely, triisopropanolamine, trisodium citrate and sodium carbonate, are of about equal effectiveness and improve the absorption of penicillin over that obtained by other methods, including penicillin without adjuvants. These alkalis are also more effective than any of several enteric coatings, although a light enteric coating may improve results slightly. By means of such combinations the absorption of penicillin by normal persons becomes approximately that obtained in persons with gastric achlorhydria. This suggests that any great improvement over these results will come, not with another antacid, but with an agent which promotes the penetration of the drug through the intestinal mucosa. At present the production of such an effect is speculative. Quinine, methenamine, the salicylates and possibly triisopropanolamine or other alkalis may depress the mucosal cells directly and so be conducive to such an effect. The organic solvents may affect the lipoids of the cell surfaces, possibly by extracting or altering certain elements which would decrease their normal protective power. These are only suggestions, as little is known concerning fundamental factors influencing permeability through living membranes.

The extremely large doses, i. e. 500,000 to 1,000,000 units, which have been used by others were not tried because of expense. It has been disappointing that our best results are greatly inferior to some reported by others, notably Burke and his associates.[13] We are at a loss to explain this discrepancy.

Exellent results were produced in gonorrhea by the best preparations. Oral therapy for this disease may be criticized as being subject to unreliability on the part of the patient and as masking coinicident syphilis by inadequate treatment. Gonorrhea was chosen, however, as large numbers of patients were available, relatively exact diagnosis and proof of cure may be established, the organism was highly susceptible, and it was a disease in which inadequate treatment would not immediately threaten life. With the ordinarily effective total dose of one-half million units, expense (about $5 at present) ceases to be an important factor in limiting oral treatment of gonorrhea. However, the ultimate desirability of oral medication in gonorrhea remains undetermined.

CONCLUSIONS

1. Extensive trials of the administration of penicillin by mouth, with various enteric coatings and adjuvants to protect the penicillin or promote its absorption, resulted in the following useful combinations: mixtures of penicillin with triisopropanolamine, trisodium citrate or sodium carbonate enclosed in a resin-cellulose plastic enteric coating.

2. When the dose of penicillin was 50,000 units, administered every two hours for ten doses, these

superior combinations produced penicillin blood concentrations of from 0.02 to 0.05 unit per cubic centimeter.

3. Fifty-three cases of acute gonorrhea were treated with several of the most promising combinations, with cures in 38, or 72 per cent.

4. Treatment of infections with highly susceptible bacteria by orally administerd penicillin appears to be feasible.

TOURNIQUET PARALYSIS

ANALYSIS OF THREE CASES OF SURGICALLY PROVED PERIPHERAL NERVE DAMAGE FOLLOWING USE OF RUBBER TOURNIQUET

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Paralysis of a peripheral nerve following the use of a rubber tourniquet for surgical hemostasis is not an infrequent occurrence. A review of the literature, however, reveals few reports of such lesions. This is probably due to the fact that the vast majority of such cases show only an evanescent paralysis with involvement lasting a few days or weeks, followed by complete remission of symptoms. This deduction is verified by our own experience and that of the numerous surgeons with wide experience in the use of the tourniquet.

The first available report is that of Montes,[1] who in 1888 described permanent peripheral nerve paralysis as a result of the use of a tourniquet. The exact length of time of follow-up is not known. The next item in the literature is a case report by J. J. Putnam[2] in 1888 before the Boston Society for Medical Improvement. He described complete paralysis of the nerves of the arm following the application of a rubber tourniquet during a surgical procedure on the hand. The patient had a reaction of degeneration in the involved muscles. It was Putnam's opinion that "not only was degeneration present at the site of the lesion but that it traveled distally along the nerve to the involved muscle, inciting a subacute inflammation in the muscle." Further details are not reported by this author.

The largest series of similar cases is that collected by Eckhoff,[3] who described 14 cases of tourniquet paralysis with varying degrees of permanence and severity, none of which were surgically explored. None of this writer's cases were permanently paralyzed. Ten of his cases were cured in three months, 3 cases were cured in five months and 1 case improved in six months. All received intensive physical therapy. In that writer's experience the radial nerve was the most frequently involved, although in a fair proportion of cases the median or ulnar nerve was involved. An interesting observation in some of his cases was the return of voluntary power before the return of faradic current response. Robb[4] reported his findings in tourniquet paralysis of all the main nerve trunks of the arm. Treatment consisted of intensive physical therapy, which was followed in three months by complete recovery. This author makes the statement that, in general, recovery takes place in from one to six months.

Burman[5] in 1940 was the first to report a case of tourniquet paralysis in which the involved nerve (sciatic) was explored surgically. As in 1 of our cases the tourniquet was applied during the course of a meniscectomy of the knee. Exploration at the level of the tourniquet revealed that the "medial portion of the sciatic nerve was flattened and compressed for a distance of 1 inch, and the lateral nerve was covered by a small organizing fibrinous hemorrhagic exudate." Neurolysis was performed, and in nine months complete recovery had taken place.

It becomes evident, therefore, that few cases of permanent paralysis secondary to the use of a tourniquet have been reported in the literature. All of Eckhoff's cases were cured in a few months, as was also the case of Robb. Burman's case improved in nine months after a neurolysis had been performed. Specific details regarding Montes' and Putnam's patients are not available, but it is to be presumed that they were permanently paralyzed. Thus, of the 18 cases noted in the literature, 16 were not permanent, the majority being less than three months, and 2 cases were presumably permanent.

One of us (I. J. S.) had under his care during the last eighteen months 970 peripheral nerve injuries, almost all of which were battle casualties. Among this group there were 3 cases of permanent paralyses secondary to the use of the tourniquet. In view of the more or less general use of a tourniquet to produce an avascular surgical field and the relative infrequency of this complication, these cases are presented for analysis.

REPORT OF CASES

CASE 1.—A sergeant in the infantry, aged 38, with no significant episodes in his past history, was struck in the left midforearm by land mine fragments on Nov. 6, 1943. A compound comminuted fracture of the radius resulted, but there was no evidence of paralysis. On November 7 the wound was debrided, the operation being performed with a tourniquet of rubber tubing applied at about the junction of the lower and middle thirds of the arm. The duration of the operation is not definitely known, but the patient believes that it took one and one-half hours. A cast was immediately applied. It was not until December 15, on removal of the cast, that a complete wrist drop was noted. The wounds and fracture healed well, but there was no evidence of improvement in the nerve deficit.

Physical examination revealed well healed wounds on the dorsal and volar surfaces of the middle third of the forearm, with complete paralysis of the extensor muscles of the wrist, fingers and thumb. There was also complete absence of brachioradialis muscle function, pronounced weakness of supination, paralysis of the abductors of the thumb and a small patch of diminished sensation over the dorsum of the first interosseous space.

Although the wound was in the midforearm, tourniquet paralysis was suspected because the brachioradialis and supinator paralysis placed the level of the lesion above the elbow. Accordingly, on April 26, 1944 the radial nerve was explored in the arm from the point where it pierced the lateral intermuscular septum to its position between the tendon of the biceps and the belly of the brachialis muscle. On thus exposing the nerve in the lower third of the arm over a distance of 6 cm. (fig. 1) the radial nerve was noted to be less than half its usual diameter. Along this area of diminished diameter, at irregular intervals, were six firm nodules occupying almost the entire thickness of the nerve. Each nodule was about the

From the Neurosurgical Section (Major Speigel) and the Orthopedic Section (Lieutenant Colonel Lewin) of the Mayo General Hospital, Galesburg, Ill.

1. Montes de Ola, F.: Paralisis permanente produceda per la isquemia quirigica, Independ. méd. Mexico **1**: 35, 1880.
2. Putnam, J. J.: Peripheral Paralysis Following Use of a Rubber Tourniquet, Boston M. & S. J. **119**: 107, 1888.
3. Eckhoff, Nils L.: Tourniquet Paralysis, Lancet **2**: 343, 1931.
4. Robb, Douglas: A Case of Tourniquet Paralysis, New Zealand M. J. **32**: 203, 1933.
5. Burman, M. S.: Tourniquet Paralysis of the Sciatic Nerve, Bull. Hosp. Joint Dis. **1**: 14, 1940.

size of a split pea and had the characteristic consistency of a neuroma. Electrical stimulation above the most proximal nodule yielded no muscular response, and saline solution when injected into the neuroma would not flow above or below the pathologic area. In view of the long area of nerve that was damaged, resection and suture of this area was considered unwise and

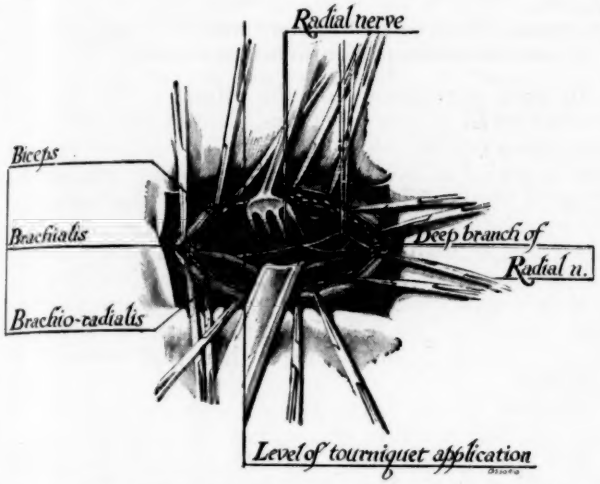

Fig. 1.—Surgical exposure of the radial nerve in case 1, revealing the multiple neuromas in the nerve below the area of tourniquet application.

the wound was closed. It healed well. Because of the findings at operation, it was decided that the lesion was irrevocable and tendon transplantation was performed two months later. The details of the last operation and subsequent course are not available to us.

CASE 2.—A private in the armed forces, aged 25, with no abnormalities in his past history, began early in 1943 to experience pain in the left knee with tenderness anterolaterally over the knee joint. He was found to have the classic findings of a ruptured meniscus. On Jan. 26, 1944 in an overseas hospital meniscectomy was performed on the left knee. The operation lasted approximately one and one-half hours and during the entire operation a tourniquet (probably rubber tubing) remained in force high up on the middle third of the thigh. Immediately following operation a full length leg and thigh cast was applied to a point just above the ankle. Because of some discomfort at the ankle, the cast was bivalved. Immediately on removal of the cast the patient noted a complete foot drop with numbness on the dorsum of the foot, particularly on the adjacent sides of the great and adjoining toes, and weakness of plantar flexion of the ankle. For three months following this there was some improvement in function of plantar flexion at the ankle joint, but for about three months prior to admission to the service of one of us (I. J. S.) no noticeable improvement took place.

Physical examination on admission to the hospital on June 16, 1944 revealed a well healed surgical incision 3 inches long on the medial side of the left knee. There was complete foot drop on the left side, with paralysis of the dorsiflexors of the toes and evertors of the foot. Plantar flexion and inversion were normal. Hyperesthesia and hypalgesia were present on the lateral aspect of the leg and the dorsum of the foot and toes.

On July 6 the left sciatic nerve was exposed from the gluteal fold to the head of the fibula (fig. 2). In the middle third of the thigh the nerve was seen to be surrounded by scar tissue and was remarkably thinned out, especially its common peroneal component. Over a distance of 4 inches the common peroneal portion of the sciatic nerve was firm, hard and narrowed to one fourth of its normal diameter. Saline solution would not flow above or below this area when injected, and there was no response to electrical stimulation. The tibial portion of the nerve appeared quite normal. The common peroneal nerve at the head of the fibula showed no evidence of injury from the cast. Since the defect was too large to bridge, the scar tissue was cleared away and the wound closed. There was no postoperative change in symptoms. The patient was followed for four and one-half months postoperatively with no change in symptoms. Following this he was discharged from the service and further check-up is therefore not available.

CASE 3.—A sergeant in the Tank Corps, aged 40, slipped during a bombing attack on his ship and fell three decks to the hold of the ship, sustaining a comminuted fracture of the head of the right radius. There was no evidence of involvement of the radial nerve. On Nov. 26, 1943 he was operated on because of the displacement of the head of the radius. At operation pronounced comminution of the head of the radius was seen, and one section was displaced beyond the confines of the orbicular ligament and the capsule of the joint. The head of the radius was excised, but some fragments still remained. Following operation there was no evidence of radial nerve involvement. However, since limitation of movement at the elbow joint persisted, on June 6, under intravenous pentothal sodium anesthesia, the joint was reexplored, a loose body removed and the elbow manipulated to overcome some adhesions. A tourniquet was applied at the beginning of the operation and remained on for approximately fifty-five minutes. Immediately following the operation a complete wrist drop was present and has persisted to the present time.

On September 3 he was admitted to the Mayo General Hospital and examination revealed a well healed scar on the lateral aspect of the right elbow joint. He had slight tenderness over the normal area of the head of the radius. There was symmetrical atrophy of the entire right upper extremity, most pronounced over the dorsum of the forearm. About 20 per cent loss of power of the forearm supinators and a similar weakness in the brachioradialis muscle were present. There was about a 30 per cent loss of power in the extensors of the wrist, along with complete paralysis of the extensors of the fingers and thumb. Active abduction of the thumb was lost. An area

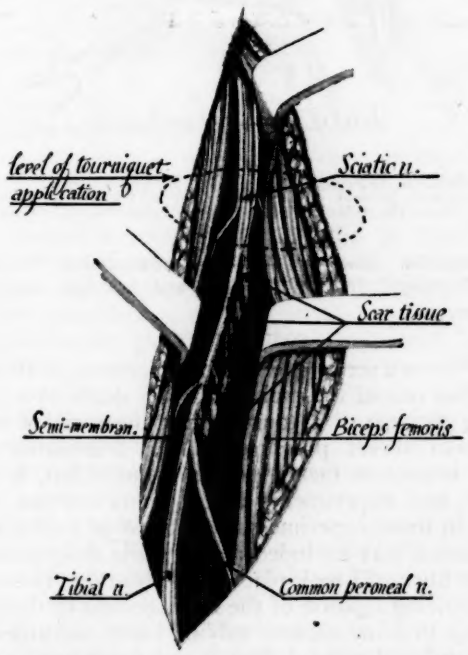

Fig. 2.—Surgical exposure of the sciatic nerve in case 2, revealing thinning of the nerve below the level of tourniquet application, most severe in the common peroneal portion. A good deal of scar tissue is evident around the nerve.

of hypalgesia was noted over the dorsum of the first interosseous space, the thumb and the proximal phalanx of the index finger. Hypalgesia was also noted over the dorsolateral aspect of the forearm.

There was an area of brown discoloration around the lower third of the arm, where, apparently, the tourniquet had been applied.

October 13 the radial nerve was exposed by a lateral incision extending from 1 inch above the area where the tourniquet had been applied to the head of the radius. At points 0.5 cm. above and 1 cm. below the area of application of the tourniquet two firm nodules, each about the size of a split pea, could be palpated (fig. 3). They occupied about three fifths of the diameter of the nerve. Below these neuromas the radial nerve was narrowed to about one half its usual size in that location. The nerve was traced to its point of division and beyond, but no evidence of injury to the nerves at the site of previous operation was found. Small bands of adhesions surounding the neuromas were separated. Saline solution was injected above and below the neuromas and flowed beyond each of these into the uninvolved portion of the nerve. Since the patient still had some brachioradialis, supinator and extensor carpi muscle function, resection of the neuromas was considered unwise. The cutaneous branch of the musculocutaneous nerve was visualized but appeared normal. The morning following the operation the patient noted increased power in the brachioradialis and extensors of the wrist. He noted also improvement in sensation over the dorsum of the first interosseous space, the dorsum of the first phalanx of the index fingers and the dorsal surfaces of the thumb. Following this no further improvement was noted in the patient's symptoms over a period of four and

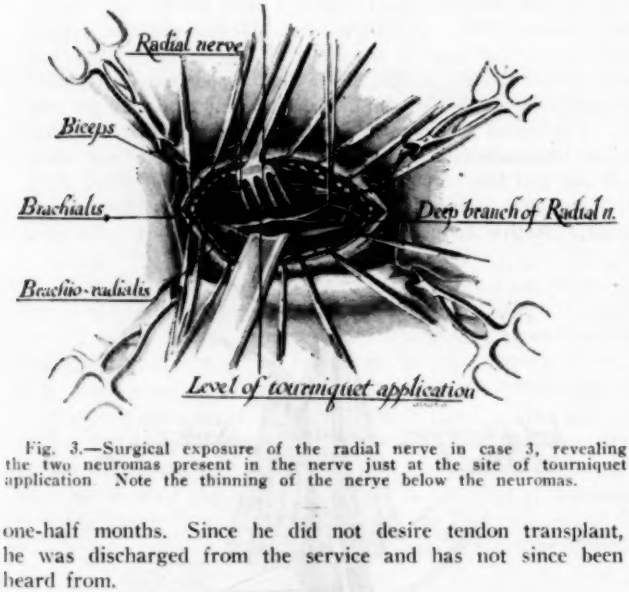

Fig. 3.—Surgical exposure of the radial nerve in case 3, revealing the two neuromas present in the nerve just at the site of tourniquet application. Note the thinning of the nerve below the neuromas.

one-half months. Since he did not desire tendon transplant, he was discharged from the service and has not since been heard from.

COMMENT

Allen,[6] from a series of experiments, comes to the conclusion that one of the main causes of death of a nerve following the use of a tourniquet is necrosis of nerve fibers from direct pressure at the tourniquet site. Another important factor, according to Allen, is local asphyxia, and experiments to bear this out are mentioned. In these experiments the factor of local tourniquet pressure was excluded and organic destruction of the nerve fiber still took place after from one to several hours following ligation of the main vessels of the limb. According to him, narrow rubber bands or tubes are less harmful and painful than broad tourniquets. His reasons are logical—a wide tourniquet at the same pressure as a narrow tourniquet is pressing on more surface than the narrow tourniquet and therefore can do more harm. In actual practice, however, one of us (P. L.) has noted that it is less harmful to use a broad tourniquet, the explanation being that a force applied over a greater surface is less harmful than an equal force applied over a smaller surface.

Denny-Brown and Brenner[7] believe that the effect of pressure on a nerve is entirely an ischemic phenomenon. The effect of pressure on conduction is graded by these authors as follows:

1. Nil.
2. Paralysis with rapid complete recovery on release of pressure.
3. Paralysis with delayed recovery without degeneration.
4. Complete anatomic lesion with degeneration.

In their experiments on the effect of pressure on conduction in peripheral nerves, Bentley and Schlapp[8] postulate a critical value of 130 mm. of mercury applied over a period of two to three hours for the production of nerve block. They state also that the time taken for the establishment of nerve block by direct pressure is much longer than that observed in ischemia. These authors stress the fact that pressure block has different characteristics from block due to ischemia and that the time taken for the establishment of nerve block by direct pressure is much longer than that observed in ischemia.

Biopsies of the nerve lesions seen in the 3 cases reported here were, of course, not taken because nerve suture was not surgically feasible, and possible return of function would have been jeopardized. The exact nature of the pathologic involvement is therefore not known. There was no question, however, about the presence of intraneural scar and neuromas in all the cases by palpation of the lesion. The only apparent causes for this involvement would therefore appear to be either pressure necrosis at the site of tourniquet application with fibrosis and neuroma formation or ischemia below the site of application of the tourniquet, death of the ischemic portion of the nerve, fibrosis and neuroma formation. Whatever the cause, however, the end result in all 3 cases was fibrosis and neuroma formation.

The radial nerve is more frequently involved in tourniquet paralysis because of its long course in direct contact with the humerus, rendering it particularly vulnerable to compression between the bone and the tourniquet. The sciatic nerve is, of course, less vulnerable but still is not immune, since there is no great abundance of muscle present to act as a cushion between it and the femur.

The median, ulnar and femoral nerves, by virtue of their more superficial positions and the heavy muscular pads between them and bone (at the usual tourniquet sites), are less frequently involved.

BRIEF COMMENT ON CONSTRICTORS

A bloodless field is vital in certain surgical procedures on tendons, bones and joints. It aids materially in accomplishing precision technic with the greatest speed, minimal loss of blood and minimal danger of infection, besides substantially reducing the possibility of fat embolism in operations on the long bones.

The main type of constrictors are:

1. The Martin bandage, a pure para elastic rubber bandage obtainable in sizes ranging from 2½ inches by 9 feet to 3 inches by 12 feet.
2. The Esmarch band, a flat piece of heavy rubber about 1 inch wide and ⅛ inch thick, with a metal chain at one end and a metal hook at the other.
3. The Campbell-Boyd pneumatic apparatus.
4. Rubber tubing and a clamp.

6. Allen, F. M.: The Tourniquet and Local Asphyxia, Am. J. Surg. **41**: 192, 1938.

7. Denny-Brown, D., and Brenner, C.: Paralysis of Nerve Induced by Direct Pressure and by Tourniquet, Arch. Neurol. & Psychiat. **1**: 51 (Jan.) 1944.

8. Bentley, F. H., and Schlapp, W.: Experiments on the Blood Supply of Nerves, J. Physiol. **102**: 62, 1943.

It is recommended that any type of constrictor other than the Campbell-Boyd type be applied over a towel. The limb should be rendered bloodless by first elevating it for two minutes. A Martin bandage is then applied with each layer covering one edge of the preceding layer, extending from the tips of the toes more than half way up the thigh in the lower extremity and the arm in the upper extremity. Following this procedure, the constrictor is applied. The constrictor should be removed within an hour if feasible. In longer operations it is advisable to release the constrictor for a few moments and then renew the constricting force. In tendon procedures on the forearm and hand it is recommended that the tourniquet be released every forty-five minutes. Following the final removal of the tourniquet, the limb should be gently massaged in order that the blood vessels whose walls have been compressed may resume their patency.

It is our opinion that the use of the Campbell-Boyd pneumatic constrictor is attended with the least danger to vessels and nerves. It can be inflated and deflated without danger to sterile drapes and it allows for an even pressure exactly determined and distributed over a large area. Its manufacture is easy and has been adequately described.[9] For an adult of average size, 15 pounds of pressure for the lower extremity and 10 pounds for the upper extremity are the maximum. The pressure for children is proportionately lower.

CONCLUSIONS

1. Severe damage of peripheral nerves can occur as a result of application of a rubber tourniquet for surgical ischemia.

2. Factors involved in the production of the paralysis are (*a*) pressure necrosis at the site of tourniquet application, with fibrosis and production of neuromas, (*b*) ischemia below the site of application of the tourniquet with death of the ischemic portion of the nerve, fibrosis and production of a neuroma in continuity, and (*c*) a combination of the foregoing two situations.

3. The radial and sciatic nerves are the most vulnerable to tourniquet paralysis.

4. Every case of tourniquet paralysis of a peripheral nerve immediately on its discovery should receive intensive physical therapy over a period of eight to twelve weeks. If, at the end of this time, no appreciable return of function is evident, surgical exploration of the involved nerve should be performed and a neurolysis or even neurorrhaphy (if feasible) should be attempted.

5. The Campbell-Boyd pneumatic constrictor appears to be the most efficient and least harmful of the constrictors.

9. Campbell, W. D.: Operative Orthopedics, St. Louis, C. V. Mosby Company, 1939.

Psychologic Experiments with Alcohol. — The most important conclusion that may be drawn from psychological experiments with alcohol—and these include many experiments which have not been described here—is that the various effects studied showed that alcohol is a depressant, not a stimulant. It affects first the higher brain centers which control the voluntary behaviors and emotions, while the lower centers which control such vital functions as breathing are affected only in severe intoxication. Briefly, alcohol acts in the same way as the well known anesthetics. Since it is an anesthetic, one can correspondingly predict its effect in small and large quantities on efficiency on the one side, and on sedation and relaxation on the other side.—Jellinek, E. M., in Alcohol, Science and Society, New Haven, Quarterly Journal of Studies on Alcohol, 1945.

THE LIMITATIONS OF PENICILLIN IN TREATING EMPYEMA

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ST. LOUIS

Recently several papers have appeared which have emphasized the ability of penicillin to prevent the development of empyema. In the issue of THE JOURNAL of June 23 three papers appeared by Healy and Katz, by Rudensky, Sprong and Woods and by Hirshfeld, Buggs, Abbott and Pilling which stressed the value of penicillin in this respect.

My purpose in this paper is to point out not only the value but also the limitations of penicillin in the prophylactic treatment of empyema and stress the need for surgical drainage of established empyema. Penicillin has undoubtedly proved of great value in preventing empyema when it is administered in large quantities during the incipient stages, before frank pus has formed. This is especially true of postpneumonic pleural effusions, particularly of the pneumococcic variety, as indicated by the several favorable reports in the literature. Tillett, Chambier and McCormack[1] report 8 pneumococcic infections of the pleural space in 7 of which surgical drainage was avoided, although 1 required a thoracotomy and one was left with an unexpandable lung. Bennett and Parkes[2] report 4 cases. One sterile pleural effusion associated with a staphylococcic pneumonia was thought to represent an aborted empyema. Two pleural effusions containing streptococci were sterilized and resorbed before becoming established empyemas, and 1 staphylococcic empyema in a baby was followed for ten days after its apparent disappearance. Butler, Perry and Valentine[3] report sterilization of the pleural fluid in 17 cases within two to five days of penicillin therapy. There was a recurrence of the empyemas in 28 per cent of the cases within about sixteen to eighteen days, or about one week after the penicillin was stopped.

Penicillin is also of value in cases of potential contamination of the pleural space following surgical pulmonary resection and traumatic injuries of the lung. The proper evaluation of penicillin in these cases is somewhat difficult, owing to the long recognized tendency toward a spontaneous cure in many instances.

The spontaneous clearing of up to 25 per cent of postpneumonic pleural effusions was noted in surgical textbooks before penicillin or even the sulfonamides were available. This tendency toward a spontaneous cure was especially prevalent in children and was increased by aspirations of the pleural fluid. The tendency toward spontaneous recovery without infection in the majority of cases of hemothorax resulting from stab and gunshot wounds in civilian practice is well recognized. The infections are definitely decreased in these cases by penicillin, sulfonamides, débridement and thoracenteses.

The experiences of chest surgeons over a period of years has shown that the great majority of pneumonectomy patients escape empyemas, despite potential contamination of the pleural cavity occurring as the result of cutting across the infected bronchus. Admittedly a few empyemas do occur in any large series of cases of potential infections of the pleural space, whether due

From the Department of Surgery, Washington University School of Medicine and Barnes Hospital.

1. Tillett, W. S.; Chambier, M. J., and McCormack, J. E.: Bull. New York Acad. Med. **20**: 142, 1944.
2. Bennett, T. I., and Parkes, T.: Lancet **1**: 305, 1944.
3. Butler, E. C. B.; Perry, K., and Valentine F.: Brit. M. J. **2**: 171, 1944.

to trauma or to surgery of the lung. The administration of large quantities of penicillin to all these patients during the incipient stages of their infections is to be commended in order to reduce to a minimum the incidence of empyema.

Great care has been exercised in selecting the following 38 cases of empyema reported out of more than 150 carefully recorded cases of penicillin treatment of various types of pulmonary infection. No patients were included who had not received penicillin during the formative stages of the empyema before drainage was required. Several patients who had been discharged from other hospitals as cured by small doses of penicillin were omitted because of the inadequate amount of penicillin administered. All of the many cases in which penicillin and drainage were used simultaneously were omitted. No operative cases were included in which a bronchopleural fistula was suspected

Summary of Empyemas Treated with Penicillin

No.	Name	Cause	Days of Intrapleural Penicillin	Amount of Intrapleural Penicillin	Total Penicillin in Million Units	Days of Penicillin	Days After Cause Before Drainage	Days After Penicillin Stopped Before Drainage	Cured Without Drainage After Positive Culture	Culture of Empyema	Sulfonamide Drugs
1	W. W.	Pneumonectomy	7	0.4	1.965	7	23	8	....	B. coli	....
2	G. W.	Pneumonectomy	10	0.35	1.92	28	..	..	Yes	Anaerobic rod	....
3	N. V.	Pneumonectomy	6	0.35	1.575	12	35	23	....	0	....
4	L. S.	Pneumonectomy	12	0.65	1.83	16	..	..	Yes	Staphylococci	....
5	E. S.	Pneumonectomy	0	0	0.425	9	2	0	....	Streptococci, staphylococci	....
6	R. R.	Pneumonectomy	10	0.37	0.37	10	12	2	....	B. pyocyaneus	....
7	G. A.	Pneumonectomy	6	0.35	0.35	6	10	4	....	Staphylococci, pneumococci	....
8	D. Mc.	Pneumonectomy	6	0.35	1.64	14	37	23	....	B. pyocyaneus	....
9	M. O.	Lobectomy	7	0.45	1.89	15	26	11	....	Staphylococci	....
10	M. O'H.	Lobectomy	6	0.35	2.18	9	10	1	....	B. pyocyaneus	....
11	W. L.	Lovectomy	6	0.35	2.11	15	22	7	....	Staphylococci, streptococci	....
12	C. L.	Lobectomy	6	0.35	2.11	14	20	6	....	.....	....
13	J. K.	Lobectomy	6	0.35	2.2	21	12	..	....	B. pyocyaneus	....
14	E. D.	Lobectomy	7	0.4	1.6	13	28	15	....	.....	....
15	R. C.	Lobectomy	..	....	1.5	12	21	9	....	Streptococci	....
16	O. B.	Lobectomy	6	0.35	1.7	14	4	..	....	.....	....
17	C. H.	Lobectomy	6	0.35	1.8	14	28	14	....	Staphylococci	....
18	G. S.	Pneumonectomy	6	0.35	2.04	20	10	1	....	B. pyocyaneus	....
19	R. T.	Pneumonectomy	6	0.35	1.6	17	20	9	....	Streptococci, staphylococci	....
20	H. G.	Pneumonia	..	....	1.3	30	42	7	....	Staphylococci	Yes
21	R. S.	Pneumonia	2	0.08	4.32	18	23	..	....	.....	Yes
22	M. B.	Lobectomy	1	0.1	2.38	21	17	..	....	Staphylococci	....
23	W. H.	Pneumonia	7	0.4	2.68	11	22	1	....	.....	Yes
24	G. L.	Pneumonia	..	....	1.9	30	60	4	....	Staphylococci	....
25	P. P.	Pneumonia	..	....	4.0	60	240	30	....	Staphylococci	Yes
26	M. P.	Pneumonia	..	....	0.62	7	30	6	....	Staphylococci	Yes
27	H. S.	Lobectomy	7	0.4	2.32	21	28	10	....	Staphylococci	....
28	L. S.	Lobectomy	1	0.1	2.41	15	12	..	....	B. pyocyaneus	....
29	M. B	Lobectomy	1	0.1	2.58	21	12	..	....	Staphylococci	....
30	J. M.	Pneumonia	..	....	1.2	15	14	..	....	Staphylococci	....
31	V. J.	Pneumonia	..	....	0.64	8	17	..	....	B. pyocyaneus, staphylococci	....
32	H. St.	Lobectomy	7	0.4	2.21	16	23	12	....	Staphylococci	....
33	M. C.	Lobectomy	..	....	1.68	13	17	..	....	Staphylococci	....
34	I. H.	Lobectomy	..	....	1.5	13	16	1	....	Staphylococci, streptococci	....
35	R. S.	Lobectomy	7	0.4	2.5	26	35	13	....	.....	....

and drainage of the pleural cavity was maintained for physiologic reasons following the pulmonary resection. These reported cases consist of postpneumonic empyemas and empyemas following lobectomies and pneumonectomies. Penicillin therapy was instituted at the time of operation or several days preoperatively in all of the cases of pulmonary resection.

The accompanying table represents all of the empyemas which developed over a fifteen month period while the patients were receiving penicillin before drainage was instituted. In 2 of the 35 cases reported, 5.4 per cent, recovery occurred without the development of an empyema even after positive pleural fluid cultures were obtained early in the course of the penicillin therapy. Definite empyemas requiring drainage developed while the patient was still receiving penicillin in 17, or 48.5 per cent, of the 35 cases. An average period of eleven days was required after the penicillin was discontinued before the empyemas became established as a clinical entity requiring drainage in the remaining 18, or 51.5 per cent. The distribution of the empyemas in relation to etiology is as follows: post lobectomy 17, or 48.5 per cent; post pneumonectomy 10, or 28.5 per cent; post pneumonic 8, or 23 per cent. In all but 3 of the lobectomies intrapleural penicillin was given in an average dose of 350,000 units over a period of six days. In all but 1 of the pneumonectomies intrapleural penicillin was administered in the same dosage. In each of the lobectomies and pneumonectomies an average of 1,446,000 units of penicillin was administered over an average period of fifteen days. An average of thirty days occurred between the onset of the disease and the drainage of the empyema. This is a considerably longer time than usually elapses before the drainage of most of our empyemas, especially those following a pulmonary resection, in which the empyema ordinarily develops and requires drainage within less than two weeks after the operation. Drainage was necessitated in a number of these empyemas, especially the postpneumonic ones, by the patient's continued temperature elevation and the finding of thick pus in the pleural cavity although no organisms could be cultured from the pleural fluid. All of these cultures were incubated for eight days on the advice of Dr. Phillip Varney, who noted small atypical colonies forming in many cultures on about the sixth or seventh day of incubation, after the inhibitory effect of the penicillin had become somewhat dissipated. The colonies would resume their normal growth after several transplants.

The pus was sterile on culture in 8 cases, or 23 per cent, although the persistent symptoms and temperature elevation required drainage.

Staphylococci were predominating organisms, being present in 18, or 51.5 per cent, of the empyemas.

Bacillus pyocyaneus and streptococci both occurred in 5 cases and pneumococci in only 2 cases. In 5 of the 8 postpneumonic empyemas sulfonamides also had been administered in addition to the penicillin, but in none of the pulmonary resections had any of the sulfonamides been given.

COMMENT

The administration of large quantities of penicillin as a prophylactic measure seems advantageous for patients with potential pleural infections whether due to pneumonia or to traumatic or surgical contamination of the pleural space. The period of greatest value in the use of penicillin appears to be during the incipient stages of the infection, preferably even before a pleural effusion has developed. It is also valuable during the developmental stages of a pleural effusion when the fluid remains thin and clear with relatively few pus cells and a sterile culture. The formation of fluid and positive cultures should decrease rapidly within a few days if the penicillin treatment is going to be successful in preventing an empyema. The best results seem to be obtained by a combination of parenteral and intrapleural penicillin, with emphasis placed on the former route. Intrapleural penicillin alone has not proved adequate in our cases. The use of penicillin to avoid drainage of a collection of thick intrapleural pus appears to represent poor judgment and undue optimism. Admittedly, the pus can be rendered permanently sterile in a certain number of cases with tremendous doses of penicillin carried out over a long period of time at great expense to the patient for both penicillin and hospitalization. The most discouraging part of such treatment is the tendency for an unsatisfactory result, even after all of that time, effort and money have been expended.

A trial of two or three weeks with daily penicillin dosages of over 100,000 units plus intrapleural penicillin injections in the presence of a pleural effusion seems sufficient in most of these cases of potential empyema. By the end of this time either the infection should be completely cured or the empyema drained in case signs and symptoms of intrapleural infection persist. Over a week's hospitalization will still be required after the penicillin has been stopped in order to discover a latent empyema whose symptoms have been masked by the penicillin action. A recurrence rate of 28 per cent was noted in the 18 cases reported by Butler, Perry and Valentine. Fifty-three per cent of the cases reported here represent recurrences one or two weeks after the penicillin was stopped.

A certain percentage of patients with potential pleural infection develop empyema, despite large amounts of penicillin administered during the incipient stages of the infection. Some of these patients remain afebrile and asymptomatic, with clear sterile pleural fluid until a little over a week after the penicillin has been stopped. Then suddenly all of the signs and symptoms of an acute empyema develop, which respond readily to the usual surgical drainage. Some other patients, despite the penicillin, develop all the signs and symptoms of an acute or chronic empyema except a positive pleural fluid culture. They may have a continued high or low grade temperature elevation accompanied by weakness, weight loss and the formation of thick turbid pleural fluid containing numerous pus cells. These patients likewise respond to surgical drainage of their "sterile" empyemas.

A third group of sterilized, dry, nontoxic empyema cavities following the administration of large quantities of penicillin over long periods of time represents one of the most difficult problems of all. One has a chronic burned out empyema cavity with thick fibrous walls which prevent the reexpansion or function of the lung, diaphragm or chest wall for the remainder of the patient's life. This clearly simulates the unexpandable lung so familiar to those dealing with tuberculous pleural effusions accompanying artificial pneumothorax. Pilcher, Perry and Wright [4] and Valentine [3] all mention the obliteration of the sterilized cavity as one of the greatest problems in the use of penicillin for treatment of empyemas.

The use of a temporary thoracotomy drainage with irrigation of the cavity is mentioned as a possible method of eliminating the pus and fibrin clots. Tillett, Chambier and McCormack [1] report a case of chronic pneumothorax following penicillin therapy, as did Blades, Hamilton and Dugan.[5] Keefer and his associates [6] state in the report of the National Research Council that "when pus in an empyema cavity is sterilized by penicillin it often becomes so thick that a thoracotomy is necessary to furnish adequate drainage."

Kent and Sager [7] report that chemotherapeutic measures should not delay surgical drainage of empyemas. They also substantiate our experience that catheter drainage is inadequate, as the result of the obstruction of the small tubes by fibrin clots resulting from the use of penicillin. Craig and his associates [8] at the National Naval Medical Center mention the necessity for surgical drainage to cure finally 3 empyemas after intensive parenteral and intrapleural penicillin therapy.

The surgical findings on thoracotomy in cases of pleural infection treated for several weeks with penicillin would seem to indicate that even sterile, nontoxic empyemas should be treated with surgical drainage, if for only physiologic reasons. The pleural surfaces, especially the parietal pleura, are so much thickened after a few weeks of penicillin "sterilization" that they resemble the walls of a chronic empyema of two or three years' duration. Huge lumps of fibrin fill the cavities and frequently require the enlargement of the thoracotomy openings for their removal with large forceps. A closed intercostal catheter drainage would be entirely inadequate for the cleansing of such empyema cavities. A period of two or three months is frequently required for the lung to reexpand and obliterate the cavity, owing to the rigidity of the walls caused by fibrin deposits. Blades [5] reports 2 cases in which reexpansion of the lung was obtained only by surgical decortication of the wall of the cavity in his series of 24 cases treated by penicillin, in which only 3 escaped surgery.

I have found the same extensive fibrin deposits on several occasions in patients with purulent pericarditis who have been treated for two or three months with penicillin. These patients finally required a pericardiotomy for relief of their symptoms of congestive heart failure on a basis of cardiac tamponade or constructive pericarditis. Huge masses of fibrin, which sometimes showed organisms on culture, were found in the pericardial sac.

It does not seem practical to carry on penicillin therapy over a period of two to three months in an effort to cure an established empyema without drainage. Expense to the patient for both penicillin and hospital care is excessive, especially when a thoracotomy will probably be needed eventually to cure the empyema in the majority of the cases and to restore the function of the lung in the remainder. A much wiser course would be to make vigorous attempts to prevent the empyema during the first two to three weeks after the

4. Pilcher, R. S.; Perry, K. M. A., and Wright, A. D.: Proc. Roy. Soc. Med. **37**: 499, 1944.
5. Blades, B.; Hamilton, J. E., and Dugan, D. J.: Surgery **17**: 572, 1945.
6. Keefer, C. S.; Blake, L. G.; Marshall, E. K.; Lockwood, J. S., and Wood, W. B.: Penicillin in Treatment of Infections: Report of Five Hundred Cases, J. A. M. A. **122**: 1217 (Aug. 28) 1943.
7. Kent, E. M., and Sager, W. W.: S. Clin. North America **24**: 1492, 1944.
8. Craig, W. M.; Thompson, G. J.; Hutter, A. M.; Barksdale, E. E.; Pfeifer, C. C., and Wooley, P. V.: U. S. Nav. M. Bull. **44**: 453, 1945.

onset of the infection and then stop the penicillin. In case the empyemas were not completely prevented by that length of time, an eventual drainage would probably be necessary anyway, and the sooner it is done the shorter is the period of drainage required.

My experience with penicillin in over 150 carefully evaluated cases of pulmonary infections of all types including empyemas, lung abscesses and bronchiectasis has shown that penicillin does not alter the surgical principles of treatment in any way. Pus must be drained after it is definitely established, and chronically diseased tissue which is irreversibly damaged and replaced by scar must be excised.

CONCLUSIONS

1. Potential empyemas should be treated with large doses of penicillin during their incipient period of development.

2. Patients who have been "cured" of their empyemas by penicillin should be carefully watched over at least a two weeks period for a possible recurrence.

3. Any toxic or nontoxic turbid pleural effusion containing polymorphonuclear cells following a pyogenic infection treated with penicillin should be surgically drained, even through the pus is sterile on culture.

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SKIN DIABETES: HYPERGLYCODERMIA WITHOUT HYPERGLYCEMIA

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Dermatologists have long been acquainted with the fact that the institution of a diabetic diet often brings strikingly good results in therapy resistant cases, notably of dermatitis, furunculosis and pruritus, especially in elderly, obese individuals with a purplish red complexion; and that this is true despite the fact that the fasting blood not infrequently reveals normal levels, and the urine is negative as to sugar. Several years ago, in dealing with cases of this kind, on observing a striking rise in the skin sugar levels without a similar increase in the blood sugar, I [1] suggested the term "independent cutaneous glycohistechia" [2] to designate the rise in the skin sugar alone. In view of the fact that in these patients diabetic management served to bring the skin sugar levels down to normal and to clear up the skin condition and that a diet rich in carbohydrates brought on a recurrence of the disease manifestations, I assumed that this cutaneous glycohistechia must be attributable to an underlying diabetes.

Together with Depisch and Sicher,[3] and later with Lentz,[4] I studied the problem of high skin sugar levels in 132 cases. Fasting skin and blood sugar and sugar tolerance tests were made in numerous instances and under a variety of conditions. Just as characteristic blood sugar curves indicate the presence of frank or latent diabetes, we have established the pattern of cutaneous sugar curves which is representative of the metabolic response of the skin in diabetes.

From the Department of Dermatology and Syphilology, University of Pennsylvania Medical School, Dr. John H. Stokes, director.

1. Urbach, E.: Isolierte kutane Glykohistechie als Ursache chronischer Dermatosen, Med. Klin. **29**: 359, 1933.

2. Greek γλυκύς = sweet, ἱστίον = tissue, ἔχειν = to hold.

3. Urbach, E.; Depisch, F., and Sicher, G.: Zum Problem des isolierten hohen Hautzuckers bzw. Hautdiabetes, Klin. Wchnschr. **16**: 452, 1937.

4. Urbach, E., and Lentz, J. W.: Carbohydrate Metabolism and Skin, Arch. Dermat. & Syph., to be published.

For many years I have been stressing the fact that, for physiologic and pathologic studies of the skin, a far better insight into the metabolism of this organ is afforded by chemical analysis of biopsy specimens than by studies of the blood alone, even with the aid of the sugar tolerance test. The fact that the skin can independently act as a storehouse (for sugar in this instance) is, in itself, no new discovery. For we know very well that there can be uratohistechia, cholesterohistechia, chlorhistechia and histohydria without any demonstrable uricemia, cholesterolemia, chloremia and hydremia, necessarily, at the time of the examination. The fact is, of course, that the blood stream merely constitutes the route by which the substances that are to be deposited are conveyed to the storage tissues; occasionally the presence of these substances can be established in the blood, on their way to or from the storage organ; at other times their presence can be demonstrated only in the storage tissues. This lends special physiologic and pathophysiologic significance to the chemistry of the tissues; i. e., to chemical analysis of biopsy skin specimens.

It is obvious that any extensive skin sugar studies must be dependent on the perfection of an extraordinarily accurate microchemical method of examining minute pieces of skin. These requirements have been met, quite satisfactorily, by the introduction of the electric punch biopsy method, which enables us to examine pieces of skin weighing no more than 30 mg. or so; moreover, the wounds occasioned by the excision of these biopsy specimens, with a 3-5 mm. punch, are so small that stitching seems superfluous, and no cosmetic damage is done.

In a recent paper [4] the microchemical method and the technic employed were discussed in some detail; and some of the more important data on the sugar content of the skin, under physiologic and pathologic conditions, were presented.

The average sugar level of the human skin is 58 mg. per hundred grams; it is rarely higher than 65.5 mg. per hundred grams, and levels approaching 68 mg. per hundred grams are exceptional. Therefore we regard a skin sugar level of more than 68 mg. per hundred grams as pathologic. The average ratio between skin sugar and blood sugar is 61 per cent. It is only when the ratio is 70 per cent or more that we feel justified in speaking of an independent cutaneous glycohistechia. In table 1, in the column to the left, we presented the levels of 102 patients who served as clinical control cases (contact dermatitis, psoriasis, superficial mycotic dermatitis, skin cancer and so on) and who consistently showed skin sugar levels between 55 and 68 mg. per hundred grams. On the other hand, the 30 cases in the column to the right include 20 patients with skin sugar levels between 68 and 80 mg. per hundred grams and 10 with levels exceeding 80 mg. per hundred grams. However, only 16 of these 30 cases may be properly included in the "independent cutaneous glycohistechia" group, since these are the only cases showing a skin sugar to blood sugar ratio of more than 70 per cent (table 2).

These figures must inevitably lead to the conclusion, first of all, that a patient with a normal fasting blood sugar level can at the same time show more or less of an elevation of his fasting skin sugar level. Quite a number of these patients presented clinical skin manifestations which were completely therapy resistant until a diabetic diet low in carbohydrates was instituted, usually reinforced by a brief course of insulin treatment. The clinical improvement was regularly accompanied

by a return to normal skin sugar levels, which, however, again rose to pathologic levels when resumption of an ordinary diet containing average amounts of carbohydrate brought on a recurrence of the clinical symptoms, such as furunculosis, eczema and pruritus. A few examples may serve to illustrate these statements:

CASE 1.—A woman aged 52 suffered from an extensive subacute dermatitis of the body, which failed to yield to many weeks of painstaking treatment in a hospital. The blood sugar tolerance test was completely normal, as is shown in chart 1. The skin sugar tolerance test began with a slightly increased fasting level (68 mg. per hundred cubic centimeters), reached a peak (128 mg. per hundred cubic centimeters) after one hour, was still quite high (108 mg. per hundred cubic centimeters) after three hours, when the blood had begun to show hypoglycemic levels, and had not returned to its initial level by the end of the fourth hour. Institution of a low carbohydrate diet, together with small doses of insulin, brought about speedy improvement of the eczema. In conformity with the clinical improvement, the fasting skin sugar level was normal (59 mg. per hundred grams) after a week, while the blood sugar level was virtually unchanged (100 mg. per hundred cubic centimeters). Furthermore, the clinical improvement was paralleled by the response of the skin to the sugar tolerance test, during which the skin sugar now dropped to a point below its initial level by the end of the third hour (chart 2). Strict observance of the low carbohydrate diet alone caused the skin manifestations to disappear completely; however, they recurred when the diet was not strictly adhered to. This case is noteworthy because of the fact that exacerbations of the dermatitic manifestations could invariably be cleared up by means of dietary adjustments and insulin and without any kind of local treatment.

TABLE 1.—*Skin Sugar Levels*

Skin Sugar in Mg. per 100 Gm.	Cases with Skin Sugar Below 70 Mg. per 100 Gm.	Cases with Skin Sugar Above 70 Mg. per 100 Gm.
55-68	102	0
68-80	...	20
Over 80	...	10

CASE 2.—A man aged 49 had been suffering for five years from severe, constantly recurrent furunculosis. During this period he had been obliged to seek hospital treatment ten times (in three different hospitals). In view of the fact that the patient was very obese and that his complexion was purplish red, blood sugar tolerance tests were repeatedly made; but, since these were consistently normal, it seemed impossible to make a diagnosis of diabetes. When we performed the sugar tolerance test, we also found a nearly normal curve (97, 164, 164, 139, 97 mg. per hundred cubic centimeters); an examination of the skin sugar, on the other hand, revealed the high fasting level of 81 mg. per hundred grams. We refrained from performing a complete skin sugar tolerance test in this case because of the danger of infection presented by the severe furunculosis. The patient was put on a strict diabetic diet and given 10 units of insulin three times daily. By the end of the eighth day the furuncles had vanished completely, without any kind of local therapy. Thereupon, by way of an experiment, the patient was put on a diet free from salt but including average amounts of carbohydrates; this had to be stopped after the third day, however, because of the reappearance of furuncles. Strict adherence to a diabetic diet plus 30 units of insulin daily again served to clear up the condition, and the patient suffered no further attacks during the subsequent seven days, when he was on a very low carbohydrate diet. Then he was again put on a salt free diet of ordinary carbohydrate content, and again this had to be stopped after four days because of the reappearance of furuncles. Subsequently, throughout the months that the patient was kept under observation, a very low carbohydrate diet kept him free from all clinical manifestations without the use of insulin.

TABLE 2.—*Skin Sugar and Blood Sugar Ratios*

Skin Sugar : Blood Sugar Ratio, per Cent	Skin Sugar : Blood Sugar Ratio Below 70 per Cent: Cases with Skin Sugar Below 68 Mg. per 100 Gm.	Skin Sugar : Blood Sugar Ratio Below 70 per Cent: Cases with Skin Sugar Above 68 Mg. per 100 Gm.	Skin Sugar : Blood Sugar Ratio Above 70 per Cent: Cases with Skin Sugar Above 68 Mg. per 100 Gm.
Below 60	77	..	..
60-64	19	2	..
65-68	6	12	..
70-80	..	..	16
Total	102	14	16

CASE 3.—A man aged 58 gave no family history of diabetes. He had been suffering from severe, recurrent furunculosis with high fever for eight years. A sugar tolerance test performed during this period had shown a normal fasting level but a blood sugar curve somewhat suggestive of the diabetic type. Subsequent institution of a suitable diet, together with insulin treatment, had brought speedy clinical improvement. During the next eighteen months the patient had lived on a diet low in carbohydrates. Then he attempted to return to a normal diet, since the sugar tolerance test with 100 Gm. of dextrose had shown a perfectly normal blood sugar curve (101, 158, 134, 98, 103 mg. per hundred cubic centimeters) and a skin sugar level of 68 mg. per hundred grams. However, a fortnight later furuncles again made their appearance, while the skin sugar level rose to 84 mg. per hundred grams, although the fasting blood sugar level (104 mg. per hundred cubic centimeters) was normal. On a diabetic diet the skin manifestations once more showed speedy improvement, while the skin sugar level dropped to 72 mg. per hundred grams and the blood sugar level of 101 mg. per hundred cubic centimeters remained virtually unchanged. During the many months this patient was kept under observation he too remained completely free from all clinical manifestations on a low carbohydrate diet alone.

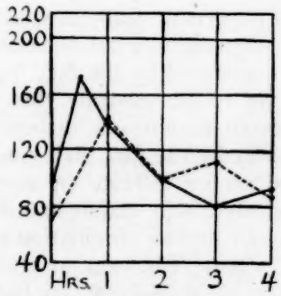

Chart 1.—Independent cutaneous glycohistechia: note normal blood sugar curve (solid line) but pathologic skin sugar curve (broken line).

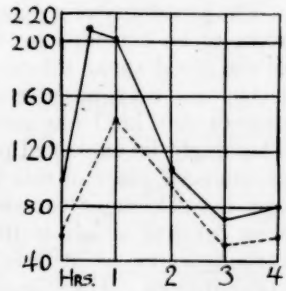

Chart 2.—Influence of low carbohydrate diet on skin sugar curve in a case of independent cutaneous glycohistechia.

The triad of (1) a high skin sugar level, (2) a strikingly good and long lasting tolerance of relatively large quantities of insulin in association with low carbohydrate diet and (3) the clinically beneficial effect of the latter on furunculosis (or, conversely, the recurrence of abscess formation on a high carbohydrate diet) would certainly seem to point to an underlying diabetes in these 2 cases of chronic furunculosis.

CASE 4.—A man aged 74 presented the typical picture of diabetic balanitis. This diagnosis was rejected, however, because the blood sugar tolerance curve was perfectly normal; investigation of the skin sugar, on the other hand, disclosed the presence of an independent cutaneous glycohistechia (the fasting skin sugar level was 80 mg. per hundred grams). A diabetic diet plus insulin promptly brought favorable results.

The other cases of this kind which we have had occasion to observe responded in a similar manner.

From our observations we must conclude, therefore, that among the cases of so-called "independent cutaneous

glycohistechia" and notably, but not exclusively, among those showing skin sugar levels of more than 80 mg. per hundred grams there are some patients in whom the independent skin sugar rise is in direct causal relationship with the presenting skin disease. This view is supported by the fact that diabetic management serves both to clear up the dermatosis and to lower the skin sugar level, and by the fact that administration of carbohydrates is followed by a rise in the skin sugar.

We have suggested the term "skin diabetes" to designate the syndrome of therapy resistant, recurrent or chronic dermatosis, a high fasting skin sugar level together with a normal blood sugar curve, and pronounced improvement of the skin disease, as well as a drop in the high skin sugar level, on a low carbohydrate diet, sometimes combined with insulin. The pros and cons of this new term will be discussed further on.

CONCERNING THE PROBLEM OF "SKIN DIABETES"

It is a difficult matter, unquestionably, to evaluate the true significance of a case presenting an independent rise in the skin sugar level and a perfectly normal blood sugar curve. Does this picture represent a preliminary phase of diabetes or is the syndrome just described in no way related to diabetes? What is the evidence for or against a connection with diabetes?

The possibility of a genuine pancreatic diabetes would seem to be excluded by the virtually normal behavior of the blood sugar tolerance curve and by the fact that it has not been possible as yet to demonstrate that a case of this kind has progressed to a frank diabetes. This might be explained partially by the fact that, since pronounced cases of this kind cannot tolerate an average, normal, sugar containing diet, skin manifestations soon develop, which, in turn, call for the elimination of carbohydrates or at least a sharp reduction in their consumption. The possibility of a diabetic etiology might also be negated by the fact that mild cases of true diabetes without skin lesions present normal skin sugar levels together with a moderate fasting hyperglycemia, while we have mostly found a considerable rise in the skin sugar in diabetic individuals with skin manifestations.[4] I must hasten to point out, however, that the fasting skin sugar level may be assessed as truly normal only when there is nothing pathologic about the skin sugar tolerance curve. (See skin sugar curve 1, which shows a high normal fasting skin sugar level but a diabetes-like skin sugar tolerance curve.)

These various facts would seem to suggest that the disturbance in the skin's carbohydrate metabolism, in cases presenting independent cutaneous glycohistechia, should be regarded as an entity in no way related to the general sugar metabolism of the body and thus, of course, unrelated to ordinary diabetes mellitus.

On the other hand, I should like to mention the following points, which would seem to indicate a direct connection between the clinical syndrome described and a disturbance in the carbohydrate metabolism, as in diabetes mellitus: (1) the high fasting skin sugar levels, which not uncommonly attain and even exceed levels of 80 mg. per hundred grams; (2) the pathologic course of the skin sugar curve, following oral administration of quantities of dextrose—a curve which is characteristically diabetic, both in its rise and in its subsequent course; (3) the return to normal of the fasting skin sugar level, as well as of the entire course of the curve, following institution of a low carbohydrate diet, notably in combination with insulin.

In support of the assumption that the skin sugar is virtually dependent on the pancreas, I should like to recall the conditions in totally pancreatectomized dogs. As mentioned elsewhere,[3] the sugar meal causes the skin sugar level to rise to heights never attained by the blood sugar. This can be explained only by the fact that the normal intermediary metabolism of sugar in the skin is dependent on the presence of insulin and that there is a vast concentration of sugar in the skin tissue when there is a lack of insulin.

This interpretation leads to the conclusion that, in cases presenting independent cutaneous glycohistechia and apparently normal blood sugar regulation, there is a disturbance of the carbohydrate metabolism in the skin, a disturbance which may, in my opinion, be related in some manner to a partial interference with the action of insulin involving only the tissues of the skin. This pattern of behavior may be succinctly described by the term "skin diabetes."

The view that the sugar in the skin is not brought there only by way of passive diffusion from the blood, but that there is also an independent, intermediary carbohydrate metabolism in the skin as an organ, has had recent further corroboration by additional, important evidence.[4]

SUMMARY

The term "skin diabetes" is suggested to serve as a designation for the syndrome of therapy resistant skin disease (generally presenting the clinical picture of furunculosis, sweat gland abscesses, eczema, pruritus), high fasting skin sugar level together with a normal blood sugar curve, and pronounced improvement of the dermatosis, as well as fall in the high skin sugar level on a low carbohydrate diet, sometimes combined with insulin.

The following points of evidence lend support to the view that there is a connection between the clinical syndrome and a disturbance in the carbohydrate metabolism, as in diabetes: (1) the high fasting skin sugar levels, which attain and even exceed 80 mg. per hundred grams; (2) the pathologic and characteristically diabetic course of the skin sugar curve following oral sugar forcing; (3) the return to normal of the fasting skin sugar level, as well as of the skin sugar tolerance curve after a low carbohydrate diet, notably in combination with insulin.

The evidence tending to negate any connection with a true pancreatic diabetes has been given due consideration.

However, quite aside from the question as to whether or not cases presenting independent cutaneous glycohistechia are actually to be regarded as cases of "skin diabetes," it may be safely said, on the basis of clinical experience, that a diabetic diet should unhesitatingly be tried in cases of therapy resistant skin diseases such as furunculosis, eczema or pruritus, even when the blood sugar tolerance test is normal.

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Psittacosis (Ornithosis) of Nonpsittacine Birds.—Pigeons are known to be extensively infected with a psittacosis-like virus in America, England and Australia. Undoubted cases of the human disease have been contracted from pigeons, but the virus strains differ recognizably from parrot strains, and there is a general tendency to adopt Meyer's name, ornithosis, for the types of virus derived from nonpsittacine birds. Again there is no reason to believe that the natural history of the infection differs in any essential respects from that of psittacosis.—Burnet, Frank MacFarlane: Virus as Organism, Cambridge, Mass., Harvard University Press, 1945.

Clinical Notes, Suggestions and New Instruments

INTRAVENOUS NUTRITION FOR EIGHT WEEKS; PARTIAL ENTERECTOMY, RECOVERY

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The use of casein digests for intravenous nutrition has received some recognition. Such nutritional support for relatively brief periods often conveys the impression of affording salutary effects, but these impressions are essentially uncontrolled observations. Our purpose in this communication is to record an instance of intravenous nutrition carried out for forty-six days, the patient receiving no food by mouth and at the end of this period being subjected to a major abdominal operation (partial enterectomy), with recovery and continued intravenous nutrition for nine more days. The total period of nutritional support entirely by vein was fifty-five days before food was permitted by mouth.

REPORT OF CASE

C. E., a man aged 50, admitted Feb. 2, 1945, presented hypertension of 204/130 and a palpable mass in the right side of the abdomen. Retrograde pyelograms were negative. Urea clearance was 21 (normal 40-65). With the diagnosis of retroperitoneal cyst or solid tumor, laparotomy was performed February 12. The abdomen was entered through a right rectus incision, and the mass was found to be a cyst 10 cm. in diameter, bulging forward from the lower anterior pole of the right kidney. The lateral reflection of peritoneum from the mesentery of the ascending colon was incised and the cyst dissected free with a narrow margin of kidney parenchyma and removed without rupture. Hemorrhage was arrested from the kidney, and the abdomen was closed with two soft rubber drains to the excision site. During the second and third days after operation the urine output was 200 and 325 cc. respectively; thereafter it exceeded a liter daily. On the second day the blood nonprotein nitrogen rose to 132 mg. per hundred cubic centimeters. During the first eight days after operation the patient hiccuped severely and frequently (uremia?), coughed considerably, had little appetite and exhibited a blood nonprotein nitrogen count of 73 to 136 mg. per hundred cubic centimeters, with a trace to 2 plus of albumin in the urine (preoperative nonprotein nitrogen 38 mg. per hundred cubic centimeters).

The wound appeared healed on the fourteenth day and all the sutures were removed. On the sixteenth day (February 27) there was almost complete disruption following cough, and at repair a loop of small bowel was observed to have become healed into the depths of the wound over a distance of about 10 cm.; there were two oval patches of apparent necrosis each about 3 cm. in diameter on the bowel wall. By the end of four days small bowel contents poured out of the wound in copious quantities. The quality of this discharge clearly revealed that the fistulas were high in the small bowel. As time went on the wound again separated widely and its floor was composed of a flat patch of jejunal mucosa measuring 8 by 4 cm., with afferent bowel opening in the lower angle and efferent opening in the upper angle (*A* in the illustration). When several attempts to ingest food were made, a copious discharge from the wound occurred in a sort time; this consisted of the partially digested nutriment. To conserve bile and intestinal juices a large rubber T tube was constructed to bridge the gap, and this functioned successfully but did not prevent some escape of bowel contents through the wound. Digestion of the abdominal wall was prevented by constant application of aluminum paste. Ingestion of food, tried once with the T tube in the bowel defect, was not successful, as the tube, plugged by the ingested food, became extruded from the wound.

The patient had been nourished entirely by the intravenous route since February 27. He was requested not to take anything by mouth to reduce the quantity of material passing down the bowel. He did, however, drink a glass of water from time to time but did not ingest food. The latter fact was confirmed by the quality of discharge on the dressings. During the period of intravenous nutrition an electric suction pump connected to a rubber tube in the wound was operated at frequent intervals by the patient. This aided materially in reducing the "spillage" about the wound.

The standard intravenous injections received daily from February 27 to April 22 (fifty-five days) were as follows (no food being ingested by mouth): 1,500 cc. of 10 per cent dextrose in saline solution (600 calories, 13.5 Gm. of sodium chloride) and 1,000 cc. of 5 per cent Amigen (enzymic digest of casein) in 5 per cent dextrose (380 calories), a total of 980 calories and 13.5 Gm. of sodium chloride.

He also received vitamins C, B and K hypodermically at intervals. There were days in which the injections were varied; for example, 800 cc. of 8 per cent gelatin solution in saline solution was substituted for 1,000 cc. of dextrose and casein digest on three occasions, and for five days on another occasion. On one day gelatin was injected in addition to Amigen and dextrose. During a few days the total amount of dextrose injected was 275 Gm. On several days no Amigen or gelatin was received.

TABLE 1.—*Blood Transfusions*

Date of Transfusions	Plasma Protein, Gm. per 100 Cc.	Red Blood Cells, Millions	Hemoglobin, Gm.	White Blood Cells
2/28/45	7.21	2.7	8	15,000
2/28/45 600 cc. blood				
3/ 9/45 600 cc. blood	6.21	3.2	10.2	14,000
3/13/45 600 cc. blood	....	3.39	11.0	8,300
3/18/45 600 cc. blood	7.18	3.28	11.5	7,000
4/13/45 1,200 cc. blood (laparotomy)	7.80	3.60	10.5	15,000
4/23/45 (day before food was resumed by mouth)	6.79			

TABLE 2.—*Nitrogen Balance*

Number of Days	Average Daily Nitrogen Intravenously as Amigen, Gm.	Average Daily Glucose Intravenously, Gm.	Average Daily Total Nitrogen in Urine, Gm.	Average daily Nitrogen Balance, Gm.
5	6.00	200	6.78	—0.78

Blood transfusions were also given on five occasions. The dates are given in table 1.

Nitrogen balance studies were not conducted throughout the whole period, but during a period of five days data were obtained as summarized in table 2.

For obvious reasons the nitrogen balance during the whole period of intravenous nutrition cannot be stated to have been —0.78 Gm. daily but it probably did not vary a great deal from this. For purposes of discussion, if this figure is adopted, the total loss of nitrogen for the fifty-five day period of intravenous nutrition would be 43 Gm. This depletion is not excessive, and in a study of nitrogen loss postoperatively in routine patients during the first ten days a number were found to have had greater nitrogen losses during such periods.

By April 12 (after forty-six days of intravenous nutrition only) the skin edges of the separated wound had healed to the margins of the flattened patch of jejunal mucosa in the bottom of the wound. The patient was then subjected to laparotomy for closure of the wound and reestablishment of intestinal continuity. The abdomen was entered through a horizontal incision extending mesially from the opened wound, and loops of small bowel were separated from one another by transection of fibrous adhesions. The opened segment of upper jejunum was freed from the old wound. This segment, measuring 8 cm. in length, was excised together with a triangular portion of mesentery. The transected ends of the

From the Department of Surgery, University of Chicago.
This study was conducted with the aid of the Charles and Mary F. S. Worcester Fund of the University of Chicago.

bowel were invaginated, and continuity of the alimentary tract was reestablished by side to side anastomosis (*B* in the illustration). The abdominal wounds were closed in layers with soft rubber drains to the right peritoneal gutter. Intravenous nutrition was maintained for nine more days and the patient was then permitted to ingest food by mouth, which he did readily and without distress. The wounds remained closed, but secondary infection developed in the depths, owing to the fact that the operation had been performed in a contaminated field. The patient was discharged May 12, 1945; on admission he weighed 72.2 Kg. and at the time of discharge 59.7 Kg. He was seen in the outpatient clinic on May 25; the wounds were healed, he was consuming a normal diet and he had no complaints.

COMMENT

As already stated, the clinical impressions of the beneficial effects of intravenous nutritional support by nitrogenous nutriments, dextrose and so on are uncontrolled observations when the period of study is relatively brief. The regimen employed for this patient was not ideal and was deficient in several respects, but the data obtained suggest that in this case pronounced depletion of protein was obviated.

During the entire period of intravenous nutrition the patient's condition was fair to good, and after forty-six days his condition was such as to raise little question as to his ability to tolerate laparotomy with enterectomy and jejunal anastomosis. To insure maximal rest of the alimentary canal, food

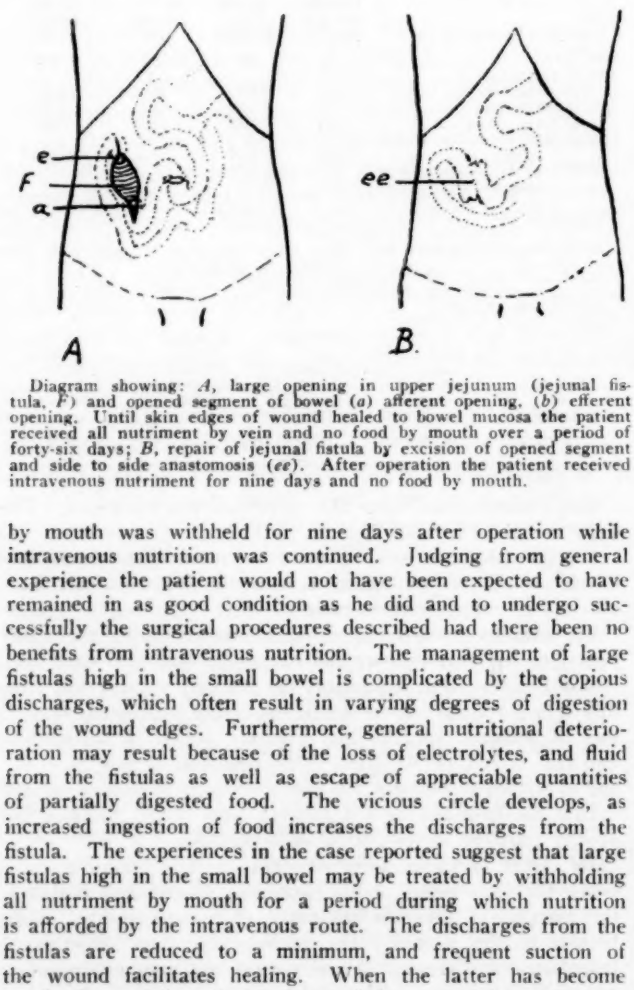

Diagram showing: *A*, large opening in upper jejunum (jejunal fistula, *F*) and opened segment of bowel (*a*) afferent opening, (*b*) efferent opening. Until skin edges of wound healed to bowel mucosa the patient received all nutriment by vein and no food by mouth over a period of forty-six days; *B*, repair of jejunal fistula by excision of opened segment and side to side anastomosis (*ee*). After operation the patient received intravenous nutriment for nine days and no food by mouth.

by mouth was withheld for nine days after operation while intravenous nutrition was continued. Judging from general experience the patient would not have been expected to have remained in as good condition as he did and to undergo successfully the surgical procedures described had there been no benefits from intravenous nutrition. The management of large fistulas high in the small bowel is complicated by the copious discharges, which often result in varying degrees of digestion of the wound edges. Furthermore, general nutritional deterioration may result because of the loss of electrolytes, and fluid from the fistulas as well as escape of appreciable quantities of partially digested food. The vicious circle develops, as increased ingestion of food increases the discharges from the fistula. The experiences in the case reported suggest that large fistulas high in the small bowel may be treated by withholding all nutriment by mouth for a period during which nutrition is afforded by the intravenous route. The discharges from the fistulas are reduced to a minimum, and frequent suction of the wound facilitates healing. When the latter has become maximal, operative closure is carried out and its success is aided by maintaining the bowel at rest.

SUMMARY

A patient with a large upper jejunal fistula received intravenous casein digest, dextrose and saline solution intravenously for a period of eight weeks. No food was ingested by mouth. After forty-six days laparotomy for partial enterectomy and enteroenterostomy were performed, closing the fistula. Recovery was uneventful, intravenous nutrition being continued for nine days after operation. The experience in this case suggests that intravenous nutrition permitting the withholding of food by mouth might prove beneficial in the management of large fistulas high in the small bowel, since discharges from the fistulas would be appreciably reduced and thus permit a degree of healing which might then be completed by surgical closure.

950 East Fifty-Ninth Street.

BENZIDINE AS CAUSE OF OCCUPATIONAL DERMATITIS IN A PHYSICIAN

RUDOLF L. BAER, M.D., NEW YORK

Eczematous dermatitis is not an uncommon occupational disease among physicians and dentists. Often merely a constant annoyance or handicap, the dermatitis may be so severe, intractable and incapacitating that it forces the physician to change his specialty or even to give up his profession entirely.

Often, particularly in surgeons, the dermatitis is due largely to the primary irritant effects of chemical agents such as soap or alcohol and physical agents such as friction (scrubbing), heat and maceration (under rubber gloves). In other cases the dermatitis is due mainly to allergens to which the physician is exposed in the course of his work. Notorious among these allergens are rubber gloves, local anesthetics and some local antiseptics.

This case of occupational allergic eczematous dermatitis is reported because the causal allergen, although used by many thousand doctors in their everyday work, has to my knowledge never been described as a cause of occupational dermatitis in physicians.

REPORT OF CASE

Dr. S. G., aged 32, first seen in the practice of Dr. M. B. Sulzberger and myself on Jan. 23, 1945, complained of a recurring eruption on the hands and face from which he had suffered on and off since September 1944. In the recurrent attacks the left hand was more severely involved and was at times the site of secondary pyogenic infection associated with lymphadenitis and elevation of temperature up to 103 F. Soothing local treatment and sulfadiazine taken by mouth usually controlled the eruption and the superimposed infection within two to three weeks.

A recurrence which began Jan. 1, 1945 resembled the previous ones except that the anterior part of the face was more seriously involved with erythema and itching. On January 23, when the patient was first seen, this attack had largely subsided. He still presented slight erythema and scaling of the palms and fingers, with drying vesicular lesions at the edges of the affected areas. There were no signs of a fungous infection of the feet. No fungi could be found on microscopic examination or in cultures of scrapings from the lesions on the hands. The remnants of the eruption cleared up rapidly under bland local treatment.

A presumptive diagnosis was made of allergic eczematous contact-type dermatitis with secondary pyogenic infection. Patch tests were carried out with the following suspected materials (each in the correct test concentration [1]): two types of hair tonics, scented talc, toothpowder, two types of nose drops, solution of formaldehyde, zephiran chloride (alcoholic solution), zephiran chloride (aqueous solution), metaphen, merthiolate (alcoholic solution), merthiolate (aqueous solution), rubbing alcohol, a proprietary ointment containing histamine, electrode jelly, lubricating jelly, two types of endocrine substances in oil, bismuth in oil, neoarsphenamine, x-ray fixing solution, x-ray developing solution, rubber finger cot and rubber gloves. None of these materials elicited a significant reaction. In view of the fact that the causal agent had not been found and in order to increase the chances of obtaining an accurate history of suggestive exposures, the patient was asked to return immediately in case of signs or symptoms of a recurrence.

On February 2 the patient returned and stated that two days previously at about 6 p. m. he had noticed itching of the fingers

1. Sulzberger, M. B., and Baer, R. L.: Year Book of Dermatology and Syphilology, Chicago, Year Book Publishers, Inc., 1943, pp. 25-42.

of the left hand. The next morning there had been a recurrence of the characteristic eruption. Examination showed pronounced edema of the left hand with erythema and vesication, particularly of the fingers. The right hand showed the same changes in a less pronounced form. Questioning brought to light the following additional materials to which the patient had been exposed during the twenty-four hour period preceding the onset of the most recent attack: sodium morrhuate in benzyl alcohol, acetic acid, testosterone propionate in oil, vitamin B complex solution, thiamine hydrochloride solution, Benedict's solution, benzidine powder and a proprietary lousicide. Patch tests with these materials in the correct test concentrations were applied. Benzidine powder produced a very strong eczematous reaction, while none of the other materials elicited a significant response. A recheck of the patient's activities revealed that at each occasion he had performed a benzidine test for blood in a stool specimen just preceding the various recurrences of his hand eruptions.

COMMENT

The present case is interesting because the allergen involved seems to be an unusual cause of occupational dermatitis among physicians. No reference could be found in the literature to any case in which benzidine had been the cause of an occupational dermatitis in a physician. However, Schwartz and Tulipan [2] listed benzidine among the dye intermediates causing dermatitis in workers engaged in the manufacture of dyes.

SUMMARY

A physician suffered from a severe recurrent eczematous dermatitis of the hands and a milder dermatitis on the face. Patch tests with a series of materials to which he had been exposed in the course of his work showed that he was strongly hypersensitive to benzidine powder. A recheck of the dates of the various attacks of dermatitis revealed that each attack had started on a day when the patient had performed a benzidine test for blood in a stool specimen.

962 Park Avenue.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

FIVE YEAR SURVEY OF METHODS FOR ARTIFICIAL RESPIRATION

BERNARD D. ROSS, M.D., PH.D.
MIAMI, FLA.

Artificial respiration is a form of therapy which does not readily lend itself to clinical study. Acute asphyxia requires immediate treatment if the patient is to recover, and seconds may mean the difference between recovery and death. As a result, laymen cannot wait for the arrival of a physician before instituting treatment, and rarely does a physician arrive before the critical period of treatment is over. Artificial respiration has thus been necessarily entrusted to the hands of nonmedical groups and individuals such as firemen, policemen and lifeguards. The physician does not usually think in terms of going to the public to get data on therapy, but it appears necessary in the case of artificial respiration, for it is laymen who administer the treatment and observe the results in the overwhelming majority of cases.

Experimental work has been done in this field, but the results are not generally accepted as being conclusive. Measurements have been made of the respiratory exchange in normal human subjects with the use of various methods of artificial respiration,[1] but there have been few such reports, and different observers have not agreed in their findings. Furthermore, there is good reason to doubt that values for the respiratory exchange in normal subjects have any bearing on the exchange in the deeply asphyxiated and apneic individual whose muscles are atonic and without resilience. This is especially true of the Schafer prone pressure method, which depends on elastic recoil of the diaphragm for production of inspiration. The newly developed rocking method of Killick and Eve [2] is unique in that it does not depend on elastic recoil. In this method the patient is alternately tipped back and forth on a stretcher, the weight of the viscera causing the diaphragm to move back and forth as a piston. This method is under trial in England but has not been used to any extent in this country.

Animal experimentation has shown the importance of the use of oxygen and carbon dioxide in the treatment of acute asphyxia. Lougheed, Janes and Hall [3] have demonstrated that the carbon dioxide as well as oxygen content of the blood diminishes as asphyxia progresses. Since carbon dioxide is a normal stimulant of the respiratory center, its use in conjunction with oxygen in the treatment of acute asphyxia appears quite rational. There are some who advocate the inhalation of these gases simultaneously with the application of a manual method of artificial respiration,[4] and there are others who have demonstrated the value of administering these gases by alternate pressure and suction.[5] There are some who contend that the use of alternating pressure and suction is unphysiologic [6] and that pressure great enough to inflate the lungs will cause tissue injury. The work of Coryllos [7] shows, however, that in the dog a pressure far above that needed for respiratory exchange must be attained before evidence of injury appears.

For fourteen years the Council on Physical Medicine has been investigating methods, both manual and mechanical, recommended for the administration of artificial respiration. During this time the Council has investigated many devices and has published reports on them. Realizing that data obtained from experiments on dogs and normal human beings did not give sufficiently satisfactory evidence for the evaluation of different methods of resuscitation, the Council decided to conduct a survey of results obtained "under clinical conditions." The aim of the survey was to get sufficient data from various life-saving organizations on actual cases of artificial respiration to permit the drawing of conclusions regarding the relative efficacy of different methods. A progress report was published in 1943;[8] the present paper is a final report of the five year study.

A number of organizations were invited to cooperate with the Council, as for example fire departments, life saving crews at beaches and large commercial organi-

2. Schwartz, L., and Tulipan, L.: Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1939.

1. Cordier, D. G.: Methods of Artificial Respiration, Brit. M. J. **2**: 381-383 (Sept. 25) 1943.
2. Killick, E. M., and Eve., F. C.: Physiological Investigation of Rocking Method of Artificial Respiration, Lancet **2**: 740 (Sept. 30) 1933.
3. Lougheed, D. W.; Janes, J. M., and Hall, G. E.: Physiological Studies in Experimental Asphyxia and Drowning, Canad. M. A. J. **40**: 423 (May) 1939.
4. Lougheed, Janes and Hall.[3] Henderson and Turner.[6]
5. Martinez, D. B.: Mechanical Resuscitation of Newborn: Report of 500 Cases, J. A. M. A. **109**: 489-490 (Aug. 14) 1937. Waters, R. M.: Simple Methods for Performing Artificial Aspiration, J. A. M. A. **123**: 559 (Oct. 30) 1943.
6. Henderson, Yandell, and Turner, J. M.: Artificial Respiration and Inhalation: Principle Determining Efficiency of Various Methods, J. A. M. A. **116**: 1508-1515 (April 5) 1941.
7. Coryllos, P. N.: Mechanical Resuscitation in Advanced Forms of Asphyxia: Clinical and Experimental Study in Different Methods of Resuscitation, Surg., Gynec. & Obst. **66**: 698-722 (April) 1938.
8. Ross, B. D.: Survey of Methods for Artificial Respiration, J. A. M. A. **122**: 660-663 (July 3) 1943.

zations, e. g. electric, steel and chemical manufacturers. Some of the commercial organizations were not interested and did not care to cooperate, while others were anxious to assist in the work but were unable to follow through because of an insufficient number of cases. Reports were received from the U. S. Coast Guard and the Chicago, Detroit and Los Angeles fire departments. These organizations provided a sufficient number of cases to make the investigation worth while, whereas manufacturers and other institutions that sent too few reports were dropped. It was felt that their reports would not contribute to a statistical evaluation.

The aforementioned organizations were selected because each had a trained life-saving crew which stood ready to render service at a moment's notice and was equipped to make a fairly accurate report and to keep records. The cooperating groups were requested to report every case, whether revival or death occurred. They were asked to state the cause of asphyxia, the method of resuscitation, the time that elapsed before artificial respiration was begun and an estimate of the results. Autopsy reports were also requested.

The Council adopted a case report blank, and it was used by the Chicago Fire Department. The U. S. Coast Guard and the Los Angeles Fire Department employed their own blanks. The Detroit Fire Department used its own forms, which had previously been revised at the suggestion of the Council.

TABLE 1.—*Sources of Case Reports*

Complete cessation of respiration	Chicago F. D.	Los Angeles F.D.	U. S. Coast Guard	Detroit F. D.	Other Sources	Total
Survival						
Cardiac	10	9	..	..	..	19
Others	44	116	44	..	4	208
Death						
Cardiac	609	139	7	25	..	780
Others	245	277	76	22	6	626
Abnormal respiration						
Survival						
Cardiac	358	268	..	27	..	653
Others	445	440	28	113	..	1,026
Death						
Cardiac	21	6	..	4	..	31
Others	3	4	1	1	..	9
	1,735	1,259	156	192	10	3,352

Material presented in this paper represents reports of cases of asphyxia occurring from 1940 through 1944. Table 1 shows the number of reports contributed by each cooperating group. They are classified according to the type of asphyxia and the results obtained. The cases were first separated into two major groups, those with complete cessation of respiration and those with abnormal respiration. All cases in which there was any type of spontaneous respiratory movement were included in the latter group. Cases were further classified into cardiac and noncardiac groups.

The Chicago Fire Department contributed the most reports, 1,735. The Los Angeles Fire Department contributed 1,259, the Detroit Fire Department 192, the U. S. Coast Guard 156 and other sources 10, for a total of 3,352. There were 1,633 cases in which there was no spontaneous respiration at the start of treatment. Of these there were 227 survivals and 1,406 deaths. Cardiac cases comprised 8 per cent of the survivals and 55 per cent of the deaths. There were 1,719 cases of abnormal respiration, in which there were 1,679 survivals and 40 deaths. In this group cardiac cases comprised 39 per cent of the survivals and 78 per cent of the deaths.

CASE REPORT OF ASPHYXIA[1] FOR THE COUNCIL ON PHYSICAL MEDICINE OF THE AMERICAN MEDICAL ASSOCIATION

1. Name of Patient: Age: Sex:
   Address: Occupation:
   Site of Accident:
   Date of Accident: Time Discovered:
   Time Artificial Respiration First Started:
2. Cause of Asphyxia:
   Carbon Monoxide — Asphyxia of the Newborn
   Drowning — Heart (Specific Diagnosis)
   Suffocation — Other Causes
3. Had Breathing Completely Ceased When Patient Was First Discovered?
4. Was Artificial Respiration Administered Before Life Saving Crew Arrived? By Whom?
   What Method Was Used? How Long?
5. Condition of Patient at Start of Artificial Respiration:
   Was Heart Beating? Was Patient Breathing?
   Could Pulse be Felt? Was Respiration Normal?
   Color of Skin (Pink? Blue? White?)
6. Method of Artificial Respiration Used by Life Saving Crew:
   A. Manual
      Schafer Prone Pressure — How Long?
      Other Manual Method — How Long?
   B. Mechanical:
      Resuscitator[2] (see definition below) — How Long?
      Inhalators[3] (see definition below) — How Long?
      Other Mechanical Device — How Long?
      Make and Manufacturer
   C. Combination of Manual and Mechanical (if combination was used, please fill in A and B also):
      Was Manual Method Used Before or After Resuscitator?
      Was Manual Method Used Directly Before or at the Same Time as Inhalator?
7. If Two or More Methods Were Used in Succession Was the Patient Breathing Before the Second (and/or Third? Etc.) Method Was Used?
8. Was Patient Alive at End of Artificial Respiration?
   Pulse After Revival — Respiration
   Any Bleeding from Nose or Mouth?
   Remarks on General Condition of Patient
9. Was a Physician Present? Name:
   Address: Phone No.:
   How Long After Discovery of Asphyxia Did Physician Arrive?
10. Who Administered Artificial Respiration? (Name and Address)
    Physician: Lifeguard:
    Fireman: Coast Guardsman:
    Others:
    If Not a Physician, What Type of Training Did He Have?
11. Was Patient Hospitalized After Resuscitation?
    Name of Hospital: Address:
12. Was Person in Average Health Prior to Accident?[4]
    Heart Disease (Specific Diagnosis)?
    Tuberculosis? Diabetes? Other Disease?
13. Subsequent History of Recovered Patient[4]
    Pneumonia?
    Other Remarks:
14. Was an Autopsy Performed?
    By Whom?
    Was There Any Evidence of Pathologic Condition of Lungs?
    Other Findings:[5]

Signature of Physician: Date:

Signature of Person Administering Artificial Respiration: Date:

1. This information is for a statistical study of methods of artificial respiration. If unable to fill in all items, please give as much information as possible.
2. Resuscitator: Any device for blowing and sucking air or some other gas mixture in and out of the lungs.
3. Inhalator: Any device supplying oxygen and carbon dioxide for the patient to breathe without mechanically blowing and sucking.
4. Information about history of patient to be obtained from family physician or relative.
5. If insufficient space is allotted, record additional information on separate paper. Write a short history regarding accident on a separate sheet.

RESUSCITATION OF THE APPARENTLY DROWNED

U. S. COAST GUARD BLANK

Coast Guard Unit: Place:
Date of Accident

1. Name, age and sex of person imperiled:
2. P. O. address:
3. Exact time of accident:
4. Distance and direction from unit:
5. Was scene of accident visible from unit?
6. Cause of accident:
7. Temperature of water and atmosphere:
8. Length of time under water:
9. How was time under water determined?
10. By whom taken from water?
11. Did patient rise to the surface after first disappearing? If so, how many times?
12. Did patient breathe or show any other signs of life when taken from the water?
13. How soon after accident did members of Coast Guard arrive on scene?

14. Were efforts made to revive person before the Coast Guard took charge? If so, state by whom, how long and the means employed.
15. Was the patient apparently dead when taken in charge by members of the Coast Guard?
16. Were patient's jaws clenched?
17. How soon after artificial respiration was begun did patient show signs of life?
18. What were the first signs of life shown?
19. What signs of life, if any, were shown while water was first being expelled from the lungs?
20. State probable quantity of water expelled or drained through the mouth on turning patient on stomach the first time and second time, respectively.
21. Length of time artificial respiration was employed:
22. How many Coast Guard men took part in this resuscitation?
23. What means were employed during process of artificial respiration to impart warmth to the extremities?
24. What other means were employed to restore circulation?
25. What stimulants, if any, were administered?
26. Give method of resuscitation employed:
27. Was patient resuscitated?
28. State name and address of physician called, time of arrival and service rendered.

Remarks:

U. S. C. G.
Commanding Officer.

INSTRUCTIONS

1. This form shall be submitted by all units on each occasion of resuscitation of the apparently drowned, whether or not resuscitation is successful. It shall be prepared in quadruplicate. The original and one copy shall be forwarded to headquarters via the district commander and a copy shall be included for his files; a copy shall be retained in the files of the unit concerned.

2. Under "Remarks" relate in detail the circumstances of the accident, describe each step taken in restoring the patient, and state the successive signs of returning life shown while resuscitation was being performed. If the attempt to revive the patient was unsuccessful, obtain the opinion, if available, of physician or local health officials as to whether or not patient was dead on removal from the water and if death was due to causes other than drowning. State cause of death, if known.

3. If necessary, use separate sheets of paper, 8 by 10½ inches in size, for the submission of additional remarks or in answer to any of the questions on page 1 of the form.

LOS ANGELES FIRE DEPARTMENT

RESCUE SERVICE REPORT

Date responded 19
Co Platoon
Responded in (vehicle):
Time responded: Time back: Time worked:
Name of victim: Age:
Address:
Location responded to: Phone:
Condition of victim on arrival:
Nature of case:
Doctor in attendance:
Address:
Equipment used:
Method of artificial respiration used:
Amount of oxygen used:
Amount of carbon dioxide-oxygen mixture used:
Case terminated (date and time, if member was detailed):
Results of treatment: Beneficial: No effect: Died: Revived
Names of men responding or detailed:
Remarks:

Company Commander.

DETROIT FIRE DEPARTMENT

RESCUE COMPANY OPERATIONS REPORT

Case No.
Rescue No. Unit No.
Date: Company Personnel: men
Time: Location:
Time worked: hrs. min. Distance traveled: miles
Nature of case: Cause:
Name of subject: Address:
Age: yrs. Married: Single: Color:
Condition on arrival:
Conscious: Unconscious: Breathing: Not Breathing:
Time between asphyxia and treatment:
Condition of subject when left:
Type of service rendered:
Employee of: Address:
Oxygen used (amt.): Was Doctor present
Doctor's name: Address:
In whose charge was subject left:
Department called by:
Remarks:

Company Commander.

Table 2 represents an analysis of the 227 cases of nonbreathing in which survival occurred. The common causes of asphyxia in this group, in order of frequency, can be seen to be asphyxia neonatorum, immersion, heart disease, carbon monoxide poisoning, acute respiratory infections, poisoning with depressant drugs, suffocation, convulsions, asthma and stroke. In the miscellaneous group are causes which occurred fewer than four times each and it includes tracheal obstruction, epilepsy, acute alcoholism and anesthesia. There were 153 cases in which a resuscitator was used successfully. In 13 of these the Schafer method was used beforehand. There were 58 cases in which the Schafer method caused resuscitation. In 8 of these an inhalator was used at the same time as the Schafer method. The other less commonly used methods follow in the table.

Cases of impaired respiration in which survival occurred are presented in table 3. Cardiac cases form the largest group, 653, with other causes in order of frequency being carbon monoxide poisoning 252, asphyxia neonatorum 162 and asthma 98. The other less common causes follow in the table. Among the miscellaneous causes were hysteria, diabetes, hemorrhage, acute indigestion, acute alcoholism, leukemia, carcinoma, exhaustion, heat exhaustion, insulin shock, perforated peptic ulcer, food poisoning, and poisoning with sulfur dioxide, with ammonia and with methane. The inhalator was the method used in the great majority (95.2 per cent) of the 1,679 cases.

Table 4 represents the cases in which death occurred. It is probable that many of the patients in this group were already dead at the time treatment was started, but cases were not excluded unless (1) there was definite evidence that thirty minutes or more had elapsed between cessation of respiration and start of treatment, (2) there was evidence of acute trauma or (3) the patient had been pronounced dead by a physician before artificial respiration was started. Thirty minutes was selected as the maximum interval between cessation of breathing and the start of artificial respiration, although a maximum of more than fifteen minutes is probably not consistent with physiologic evidence. A thirty minute limit was chosen because, owing to the emergency nature of the cases reported and the inherent confusion which naturally results, errors of as much as 100 per cent could easily be expected in the estimation of time by onlookers or participants and because periods of more than thirty minutes have been reported in the literature.[9] Cardiac causes accounted for more than half (56.1 per cent) of the 1,446 cases reported in this table. The other relatively common causes were immersion 118 (8.2 per cent), asphyxia neonatorum 97 (6.7 per cent), suffocation 42 (2.9 per cent) and carbon monoxide poisoning 40 (2.8 per cent). Less common causes were electric shock, acute respiratory infections, stroke and asthma. Miscellaneous causes, occurring less frequently than thirteen times each, were pulmonary embolism, diabetes, leukemia, carcinoma, anesthesia, acute alcoholism, cyanide poisoning, uremia, enlarged thymus and depressant drugs. Use of the resuscitator was the most frequent method employed. The second most frequent method was the use of the resuscitator preceded by the Schafer method. This represents instances in which a passer-by had

9. Bates, G.: Modern Resuscitation Procedures, Hospitals **14:** 46-50 (March) 1940. Bates, G.; Gaby, R. E., and MacLachlan, W.: Need for Prolonged Artificial Respiration in Drowning, Asphyxiation and Electric Shock, Canad. M. A. J. **39:** 120-123 (Aug.) 1938.

started the Schafer method and firemen subsequently took over with a resuscitator.

Table 5 is a composite of tables 2 and 4. It includes all deaths and all cases of nonbreathing in which survival occurred. Examination of this table gives one an idea of the survival rate for each cause of asphyxia. The survival rate in this series is poorest for cases of electric shock: no survivals, 16 deaths. The rate is also very poor for cardiac cases: 1 survival to 42.7 deaths. The highest survival rate is for cases of asphyxia neonatorum: 1 survival to 1.2 deaths. The rate for the other common causes of asphyxia are immersion, 1 to 2.7; carbon monoxide poisoning, 1 to 2.2; suffocation, 1 to 10.5. These rates are undoubtedly a function of the circumstances surrounding each type of case as well as of the cause of asphyxia itself. The high survival rate of cases of asphyxia neonatorum can thus largely be attributed to the fact that here the time interval between asphyxia and treatment is minimal. In contrast to this is the group of cases of suffocation. A typical case here is that of an infant found in bed smothered by its pillow or blanket. The mother had usually put the child to bed some hours previously, and there is no way of getting more than a very rough estimate of the time between cessation of respiration and start of treatment. Undoubtedly most of these children were dead before treatment was started, accounting to a great extent for the poor survival rate in this group.

Calculation of the relative survival rates for the different methods of resuscitation has not been attempted because there are too few cases in which the method of resuscitation can be assumed to be the only significant variable. It is only in cases of immersion that there are enough data to permit any type of comparison. In 82 cases of immersion in which the Schafer method was used there were 35 survivals. In 44 cases of immersion in which a resuscitator was used there were only 2 survivals: in both of the successful cases the Schafer method was used prior to the use of the resuscitator. It seems probable that much of this apparent superiority of the Schafer method in cases of immersion is due to the fact that no precious seconds were wasted in waiting for the arrival of a mechanical apparatus. It cannot be emphasized too strongly that an asphyxiated person must have artificial respiration at once. Waiting for a machine, however efficient, may be fatal.

TABLE 2.—*Cases of Survival in Which Spontaneous Respiration Was Not Present at Start of Treatment*

Cause of Asphyxia	1 Resuscitator	2 Schafer	3 (1) Schafer (2) Resuscitator	4 Mouth to Mouth	5 Schafer with Inhalator	6 (1) Schafer (2) Schafer with Inhalator	7 Howard-Silvester	8 Schafer Alternating with Howard-Silvester	9 Pulmotor	10 (1) Schafer (2) Resuscitator (3) Respirator	Total
1. Asphyxia neonatorum	80	..	..	..	..	..	..	..	..	..	80
2. Immersion	..	34	2	..	..	1	5	2	..	..	44
3. Carbon monoxide	7	4	5	1	..	..	..	..	1	..	18
4. Cardiac	12	2	1	..	3	1	..	..	..	..	19
5. Acute respiratory infections	3	3	..	1	..	..	..	..	..	..	7
6. Drugs	5	..	..	..	..	1	..	..	..	..	6
7. Suffocation	1	1	1	1	..	..	..	..	..	..	4
8. Convulsions	1	1	..	2	..	..	..	..	..	..	4
9. Asthma	3	1	..	..	..	..	..	..	..	..	4
10. Stroke	3	..	1	..	..	..	..	..	..	..	4
11. Miscellaneous	7	1	3	..	..	..	..	..	..	..	11
12. Undetermined	18	3	..	2	1	1	..	..	..	1	26
	140	50	13	7	4	4	5	2	1	1	227

TABLE 3.—*Cases of Impaired Respiration in Which Survival Occurred: In Each Case Breathing Had Not Stopped Completely at Start of Treatment*

Cause of Asphyxia	1 Inhalator	2 (1) Schafer (2) Inhalator	3 Howard-Silvester	4 Schafer	5 (1) Schafer with Inhalator (2) Inhalator	6 (1) Mouth to Mouth (2) Inhalator	7 Miscellaneous	Total
1. Cardiac	645	6	..	..	..	1	1	653
2. Carbon monoxide	236	8	..	1	5	..	2	252
3. Asphyxia neonatorum	162	..	..	..	..	..	..	162
4. Asthma	95	3	..	..	..	..	..	98
5. Convulsions	52	1	..	..	..	1	2	56
6. Pneumonia	42	..	..	..	..	..	1	43
7. Stroke	35	..	..	..	..	..	..	35
8. Immersion	4	3	9	16	..	..	1	33
9. Drugs	18	1	..	..	..	..	..	19
10. Ammonia	9	..	..	..	..	..	..	9
11. Suffocation	10	2	..	..	..	..	..	12
12. Epilepsy	9	..	..	..	..	..	..	9
13. Miscellaneous	118	2	1	1	..	..	2	124
14. Undetermined	164	5	2	..	1	..	2	174
	1,599	31	12	18	6	2	11	1,679

COMMENT

Before attempting to summarize results or draw conclusions, it should be pointed out that there are two features of this survey which weaken it considerably. The first of these is the paucity of data regarding the lapse of time between asphyxia and the start of treat-

ment. Although these data were asked for in all cases, this information was included in less than half of our reports. The data from the Los Angeles Fire Department is poorest in this respect, for its routine form does not contain a question regarding the lapse of time between asphyxia and the start of treatment. The second weakness in this survey is the lack of autopsy reports. Such information would have been quite helpful in determining the incidence of such pathologic conditions as pulmonary emphysema or fractured ribs, which might be attributable to some form of artificial respiration.

SUMMARY

1. Reports of cases of artificial respiration have been collected from the United States Coast Guard and from the Chicago, Los Angeles and Detroit fire departments during the years 1940 through 1944. These organizations sent in reports on all cases, regardless of whether or not resuscitation occurred. A total of 3,352 reports were obtained.

2. There are reported 153 cases of acute asphyxia in which a resuscitator, a mechanical device for artificial respiration employing alternate blowing and sucking, resulted in revival. None of the patients, 80 of whom were newborn infants, showed evidence of injury as a result of this procedure.

3. There are reported 58 cases of acute asphyxia in which the Schafer prone pressure method was successful in resuscitation. In none of these cases nor in any of the additional 328 cases in which the Schafer prone pressure method was used either entirely or in part was there any report of fractured ribs. Such injuries have been said to be a possible result of improper use of this method.

4. No instance of revival was reported in which more than fifteen minutes elapsed between the cessation of breathing and the start of artificial respiration.

5. Victims of heart disease make up a large portion of the cases treated by the inhalator squads of the Chicago, Los Angeles and Detroit fire departments.

TABLE 4.—*Deaths. In All Cases There is No Definite Evidence That Thirty Minutes or More Had Elapsed Between Cessation of Breathing and Start of Artificial Respiration*

Cause of Asphyxia	1 Resuscitator	2 (1) Schafer (2) Resuscitator	3 Schafer	4 Howard-Silvester	5 (1) Inhalator (2) Resuscitator	6 Schafer with Inhalator	7 (1) Schafer (2) Schafer with Inhalator	8 (1) Resuscitator (2) Schafer with Inhalator	9 Schafer Alternating with Howard-Silvester	10 (1) Mouth to Mouth (2) Resuscitator	11 (1) Resuscitator (2) Schafer	12 (1) Chest Compression (2) Resuscitator	13 (1) Schafer with Inhalator (2) Resuscitator	14 Miscellaneous	Total
1. Cardiac	659	79	3	3	25	17	4	6	1	..	2	2	2	8	811
2. Immersion	22	20	39	17	..	3	5	..	9	..	..	..	1	2	118
3. Asphyxia neonatorum	94	..	..	..	..	..	..	..	..	2	..	..	..	1	97
4. Carbon monoxide	24	8	..	..	..	6	2	..	..	..	..	..	..	..	40
5. Suffocation	27	9	..	..	..	2	..	..	..	2	..	..	..	2	42
6. Electric shock	7	6	..	..	..	..	1	..	..	..	..	..	..	2	16
7. Acute respiratory infection	17	2	..	..	2	..	..	..	..	..	..	..	..	..	21
8. Stroke	19	1	..	..	1	..	1	..	..	..	..	..	..	..	22
9. Asthma	12	..	..	..	..	1	..	..	..	..	..	..	..	..	13
10. Miscellaneous	36	6	..	..	..	..	..	1	..	1	..	..	..	3	47
11. Undetermined	195	13	1	..	2	3	..	..	..	..	..	..	..	5	219
	1,212	144	43	20	30	32	13	7	10	5	2	2	3	23	1,446

TABLE 5.—*Survivals and Deaths. In Survived Cases There was no Evidence That Spontaneous Respiration was Present at Start of Treatment. S—Survival. D—Death.*

Cause of Asphyxia	1 Resuscitator		2 Schafer		3 (1) Schafer (2) Resuscitator		4 Mouth to Mouth		5 Schafer with Inhalator		6 (1) Schafer (2) Schafer with Inhalator		7 Howard-Silvester		8 (1) Mouth to Mouth (2) Resuscitator		9 (1) Schafer Alternating with Howard-Silvester		10 Miscellaneous		Total	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
1. Cardiac	12	659	2	3	1	79	..	..	3	17	1	4	0	3	..	..	0	1	0	45	19	811
2. Immersion	0	22	34	39	2	20	..	..	0	3	1	5	5	17	..	..	2	9	0	3	44	118
3. Asphyxia neonatorum	80	94	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	0	1	80	97
4. Carbon monoxide	7	24	4	0	5	8	1	0	0	6	0	2	..	..	..	..	..	..	1	0	18	40
5. Suffocation	1	27	1	0	1	9	1	0	0	2	..	..	..	..	0	2	..	..	0	2	4	42
6. Acute respiratory infection	3	17	3	0	0	2	1	0	..	..	..	..	..	..	..	..	..	..	0	2	7	21
7. Stroke	3	19	..	..	1	1	..	..	..	..	0	1	..	..	..	..	..	..	0	1	4	22
8. Asthma	3	12	1	0	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	4	13
9. Electric shock	0	7	..	..	0	6	..	..	..	..	0	1	..	..	..	..	..	..	0	2	0	16
10. Miscellaneous	13	36	2	0	3	6	2	0	..	..	1	0	..	..	0	1	..	..	0	4	21	47
11. Undetermined	18	195	3	1	0	13	2	0	1	3	1	9	..	..	..	..	..	..	1	7	26	219
	140	1,212	50	43	13	144	7	0	4	32	4	13	5	20	0	5	2	10	2	67	227	1,446

Physicians were present in virtually all cases, and it was they who made the diagnoses. In only a few cases, however, was a physician present at the start of treatment. The life-saving crew arrived on the scene, as a rule, at least fifteen to twenty minutes before the physician.

Although the gross total of case reports appears impressive (3,352), the number of cases of actual resuscitation is quite small (227) in comparison to the number of different causes of asphyxia (over 11) and the number of different methods of artificial respiration used (10). The fact that in over 60 per cent of the cases revival was achieved by a single method (resuscitator) and that more than half of these cases were those of a single type of asphyxia (asphyxia neonatorum) further shows that statistical analysis is not feasible.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 6, 1945

THE BUSH REPORT ON SCIENTIFIC RESEARCH

In the Organization Section in this issue of THE JOURNAL appears the report of a special committee appointed by the Committee on Postwar Medical Service to consider the various proposals that have been made for the aid of research through the granting of funds by the federal government. In a previous issue of THE JOURNAL an abstract was published of the various measures to achieve this end, including the bills proposed by Senators Kilgore, Magnuson and Byrd. Among the points emphasized by practically every medical group that has considered the problem are the following:

1. Voluntary philanthropic foundations, universities and similar agencies have contributed greatly to scientific and particularly to medical research in the United States. The establishment of a federal agency with vast funds might well obstruct, if not destroy, such voluntary efforts and thereby do more harm than good.

2. The federal government aids research on cancer and on tuberculosis as well as research on some other conditions by special grants of funds. Measures have been introduced into the Congress for the spending of enormous funds, particularly in relationship to the study of neuropsychiatric disorders and dental conditions. Any program developed by the federal government should take into account the desirability of coordinating and integrating research on all medical problems proportionately to the need for such research and to the importance of the problems to be investigated.

3. The advancement of medical science and the improvement in health in recent years have been so great that both Presidents Roosevelt and Truman emphasized the medical aspects of research in their messages to the Congress. Nevertheless some of the measures that have been proposed for establishing a National Research Foundation fail to make provision for direct representation of medicine in the governing boards to be established, leaving it rather to subcommittees to undertake consideration of the medical problems.

4. Most of the measures that have been introduced provide for fellowships to encourage young men who seem to have aptitude for research and for sections to be devoted to the dissemination of information and knowledge that may be developed. From the point of view of medicine there should be coordination between the special agencies created for education and for the dissemination of information with the agencies created specifically for research and also with the central board.

5. The question of patents constitutes a special problem. Discussion of ownership of patents and the licensing of manufacturers under such patents may well come to be the stumbling block over which the whole proposal may fall.

Possibly the ideal concept for the control of a National Research Foundation such as is proposed would be the creation of a general controlling board to include a chairman and members who would themselves be chairmen of various subsidiary committees. By such a technic adequate representation of each of the interests concerned would be provided and with it better coordination for the management of the Research Foundation.

KETOSIS

Formerly physiologists believed that ketone body formation was an abnormal metabolic process due to incomplete combustion of fatty acids and that it was necessary to metabolize carbohydrates in order to utilize the ketone bodies completely. As a result of the work of Mirsky, Soskin, Somogyi and others this concept has been questioned in recent years. Evidence exists that ketone bodies are metabolites which are normally present in the animal organism; when there is an increased production, acidosis results. Early workers showed by means of the tissue slice technic, by perfusion and by experiments on intact animals that ketone bodies are produced only by the liver but cannot be utilized by this tissue. Extrahepatic tissue, particularly muscle, can utilize a certain amount of acetone bodies for the production of energy, on which process insulin exerts little, if any, influence.[1]

Ketone bodies and ketosuria are usually associated with the acidosis of diabetes mellitus. The association of a high sugar content of the blood with ketosuria was a logical sequence of the old theory of ketosis. Studies carried out by Waters, Fletcher and Mirsky,[2] using a

1. Mirsky, I. Arthur: The Etiology of Diabetic Acidosis, J. A. M. A. **118**: 690 (Feb. 28) 1942.
2. Waters, E. T.; Fletcher, J. P., and Mirsky, I. A.: Am. J. Physiol. **122**: 542, 1938.

heart-lung preparation, when the amount of glucose and ketone bodies in the blood could be regulated at will, have shown conclusively that glucose is not necessary for the metabolism of ketone bodies. The fact that insulin can reduce ketosis and still not increase the utilization of ketone bodies in extrahepatic tissue leaves only the possibility that insulin prevents the formation of increased amounts of ketone bodies by the liver.

The liver of a diabetic animal is known to be depleted in glycogen; one explanation of the antiketogenic action of insulin is that the production of ketone bodies occurs whenever the liver is depleted of glycogen. This results in an increased fat metabolism and a resulting increase in ketone body formation. Somogyi [3] recently presented evidence that the feeding of carbohydrate to normal persons reduces the level of ketones of the blood. This effect is attributed to the fat and protein sparing effect of carbohydrates.' When the body is burning carbohydrates it is not metabolizing as much fat, and a resulting decrease in ketone body formation results. Somogyi [4] presents the thesis that the concentration of ketones in the blood is governed by four factors, two tending to increase it and two tending to reduce it. The factors which tend to increase the level of ketones of the blood are deglycogenation of the liver and decrease in the rate of ketone body utilization by the peripheral tissue. The factors which tend to decrease the level of ketones in the blood are increased utilization of carbohydrates by the liver and increased rate of utilization of ketone bodies by the peripheral tissue. These postulates are supported by Drey,[5] who showed a transient ketosuria in association with aglucosuria in patients made hypoglycemic by overdoses of insulin. The concept is brought forth that insulin may be either ketogenic or antiketogenic. When insulin is given in such amounts that hypoglycemia results there is a reduction of the glycogen stores in the liver, since there is a tendency to maintain the glucose level of the blood. Concurrent with the low liver glycogen there is an increased metabolism of fat by the liver and a resulting ketonemia and ketosuria. On the other hand, if insulin is given in amounts sufficient to halt glycogenolysis there will be an increased carbohydrate utilization by the liver and a resulting decrease in fat oxidation, which will reduce the amount of ketone bodies produced. Thus, in man, ketonuria and aglucosuria may be present at the same time; it appears that ketonemia and ketosuria are normal physiologic responses to a lack of carbohydrate and an increased fat metabolism in the liver.

3. Somogyi, Michael: J. Biol. Chem. **145**: 575, 1942.
4. Somogyi, Michael, and Weichselbaum, T. E.: J. Biol. Chem. **145**: 567, 1942.
5. Drey, N. W.: Ann. Int. Med. **22**: 811 (June) 1945.

As more is known of the intermediary metabolism of foodstuffs, more precise knowledge will be had of both normal and pathologic metabolic processes. This will be of value to the clinician in the diagnosis and rational treatment of metabolic diseases.

THE ORIGIN OF VIRUS

In its restricted sense the term "virus" is applied to agents of disease which so far as known do not multiply in any medium other than living cells of a susceptible host and which pass through standard filters holding back bacteria. Burnet [1] has reviewed the speculations concerning the origin of viruses and their relations to other forms of life. One hypothesis assumes that viruses may be fragments from cells of high forms, footloose genes which have found ways of surviving by passage from host to host; definite evidence of any such process has not been advanced. Another possibility is that viruses are descendants of precellular forms of life which failed to survive except through the adoption of a strictly parasitic, intracellular existence. Filtrable saprophytes have been described the relationship of which to virus awaits investigation.

The dominant view of the origin of viruses is that they are degraded descendants of larger pathogenic microbes as suggested by the range of visible forms between bacteria and certain viruses. Rickettsias and the psittacosis viruses resemble bacteria in several ways, but their requirements for growth are those of viruses. In the case of the smallest viruses the resemblances to bacteria are not at all so striking. Other possible sources of viruses may be fungi, protozoa and spirochetes. This latest view of the origin of virus assumes that the loss of the power of chemical synthesis on part of the descendent units was associated with adaptation to an intracellular environment in which synthetic power is not required for indefinite survival in successive hosts. This implies that viruses, with as well as without vectors, like other living beings, have intricate evolutionary histories.

Burnet writes "We can state dogmatically that there is no evidence whatever that any virus, whether its host be animal, plant or bacterium, arises *de novo*. Every virus particle like any other organism derives by genetic descent from some similar particle and in its turn possesses the power to produce under appropriate conditions replicas of itself." Medical practice, public health work and present investigation are firmly based on the principle that virus diseases breed as true to type as other infectious diseases.

1. Burnet, F. M.: Virus as Organism: Evolutionary and Ecological Aspects of Some Human Virus Diseases, Cambridge, Mass., Harvard University Press, 1945.

Current Comment

CLASSIFIED ADVERTISING FOR VETERAN PHYSICIANS

At a recent meeting of the Board of Trustees of the American Medical Association in Chicago it was decided to offer without charge to every physician in the military service who was honorably discharged the opportunity to place a classified advertisement in the columns of THE JOURNAL devoted to this purpose. Such advertisements will be limited to one insertion of thirty-five words but may be devoted to the search for an assistantship or a residency, to a search for partnerships or space in an office, or to any of the other general headings listed regularly in the classified columns of THE JOURNAL. The advertisements will, of course, be limited by the same rules that now apply to all classified advertising. They will be inserted under the appropriate headings in this department of THE JOURNAL. The opportunity for such utilization of the classified advertising columns will continue until Dec. 31, 1945.

HEALTH EDUCATION AND VENEREAL DISEASE

The Army's experience with 8,000,000 men has provided an unusual opportunity to evaluate the effect of health education on the prevention of venereal disease. According to Larimore and Sternberg,[1] the Army venereal disease educational program has applied virtually all of the accepted technics of health education. During 1944 the amount of graphic educational material distributed among the troops amounted to 15,000,000 pieces, and film audiences totaled 10,000,000. The program of instruction followed two lines: (1) to impart technical knowledge about venereal disease and (2) to motivate the individual to utilize this information at the time needed for the avoidance of venereal disease. Certain principles have been found essential for the successful use of education. Chief among these are (*a*) an integrated program, (*b*) the highest possible quality and attractiveness of all educational materials, (*c*) abandonment of the pedagogic concept of health education and substitution of a new approach of "health advertising," (*d*) avoidance of overemphasis of sex and (*e*) technical accuracy of all materials. It was easier to impart technical knowledge than to motivate the individual to utilize it. The following factors in motivation have been employed and have been found to be effective: fear, intelligence, pride, patriotism. Among the reasons for failure of motivation were (*a*) the nature of the sex urge itself, (*b*) "education for venereal disease" afforded by sexy motion pictures, comic strips, pin-up girls and the use of sex in certain advertising, (*c*) "war psychology," (*d*) displacement of normal family and social relationships, (*e*) newer methods of treatment, (*f*) alcohol and (*g*) the state of morale. The strictly moral approach to the problem of avoiding venereal disease has been relatively ineffective in the Army. In measuring the results of the program, the authors state that the best single criterion is the extent of utilization of prophylaxis, which at the present time is at the rate of more than fifty million individual prophylactic items per month.

1. Larimore, Granville W., and Sternberg, Thomas H.: Does Health Education Prevent Venereal Disease? Am. J. Pub. Health **35**: 799 (Aug.) 1945.

SEMEN ANALYSIS AND MALE FERTILITY

The discovery of a cause for sterility in the wife constitutes insufficient evidence for attributing the reason for the sterile marriage to that partner exclusively. As pointed out by Harvey and Jackson[1] after an extensive study of the value of semen analysis in the assessment of male fertility, both partners are involved in a high proportion of sterile marriages. Only when the husband's semen is fully examined and classified can this factor of subfertility in the male partner be appropriately evaluated. This report from the Exeter Sterility Clinic in England indicates that there are four main factors in semen analysis which influence fertility. For one of these—density—they believe that a figure of 50 million sperm per cubic centimeter can be accepted as a reasonably satisfactory minimum with the technic employed. The morphology of the sperm is also important; abnormalities can occur in the head, middle piece or tail. Abnormal morphologic types may appear in the seminal fluid as a result of imperfect spermatogenesis, arrest of spermateliosis at an early stage with premature detachment from the germinal epithelium, or degeneration of originally normal sperm. Harvey and Jackson describe a technic by which the percentage of fully motile and feebly motile sperm can be readily calculated. By observing the rate of decreasing motility at various intervals, the viability of sperm can be expressed in a manner which also permits fertility to be roughly graded. Whether density or total sperm count gives the better index of fertility is uncertain. The authors believe that male subfertility does not become of primary importance unless the results of the semen analysis fall below minimal values in all four of these criteria. The Exeter report is based on analysis of the semen of 324 husbands of subfertile marriages, in 236 of whom the examinations were carried out according to the detailed methods described in the paper. The technics are so complex that they cannot be readily duplicated in a physician's office; considerable equipment and expert technical skill are necessary. This work and others of a like nature, however, furnish important basic knowledge on the factors involved in the treatment of the sterile or subfertile marriage.

1. Harvey, Clare, and Jackson, Margaret Hadley: Assessment of Male Fertility by Semen Analysis, Lancet **2**: 99 (July 28), 134 (Aug. 4) 1945.

MEDICINE AND THE WAR

ARMY

SAFE AND EFFICIENT USE OF DDT

A bulletin was recently published by the Army as a technical guide for the safe and efficient use of DDT. The publication contains information on the precautions to be taken in handling DDT, its mode of action in insect control and the proper methods of application.

It is emphasized that, although DDT may be safely handled as an insecticide, it is nevertheless a toxic material. Poisoning may occur from ingestion of DDT solutions through the skin. DDT powder and aerosols are not absorbed through the skin and have been found to produce no ill effects when inhaled in small amounts. However, in conditions in which air currents do not carry away the dust from the user, it is wise to wear suitable respirators as protection against excessive inhalation.

DDT acts on insects both as a contact poison and as a stomach poison. Studies have shown that the poisonous effect of DDT on mosquito larvae is fully as powerful as that on the adult insect, although on some other insects, such as flies, the larvae are not equally affected by the insecticide. For the extermination of insects such as ants, roaches, fleas, bedbugs and flies, DDT oil solution or powder should be used, with particular attention to cracks, holes and seams in walls, floors and bedding, as indicated. One of the most valuable characteristics of DDT lies in its tendency to remain deadly to insects over a prolonged period. In applying DDT solutions to walls and other large surface areas, a coarse spray is usually employed, but in applying it to screens or mesh surfaces ordinary paint brushes may be used. Although the effectiveness of the treated areas against insects persists for some time, the insects which come in contact with the chemical may not die until an hour or more has elapsed, and immediate death should not be expected.

Although rapid progress has been made in the development of DDT since it first made its appearance in the field of science, much remains to be learned before its full potentialities in insect control can be realized. Investigation is continuing on every aspect of DDT, however, in search of new and extensive improvements in everything from its chemical beginning to its final application in the field.

MERITORIOUS SERVICE UNIT AWARD

The Meritorious Service Unit Award was recently given to the 25th AAF Base Unit (AAF Medical Service Training School), Robins Field, Ga., "for outstanding devotion to duty in the performance of exceptionally difficult tasks during the period Nov. 10, 1944 through May 31, 1945. During this period," said the citation, "the personnel of the 25th AAF Base Unit performed in an outstanding manner in accomplishing its mission of casual and unit training. In addition, this unit greatly contributed to furthering medical training and sanitation for the Army Air Forces by preparing many unique training aids and devices. The high standard of discipline and superior performance of duty displayed by the members of the 25th AAF Base Unit reflect highest credit on the organization and the Army Air Forces of the United States." Lieut. Col. Norbert B. Reicher, M. C., Syracuse, N. Y., is the commanding officer of the school, and Major Thomas E. Rardin, M. C., Columbus, Ohio, the director of training.

DENTAL CORPS OFFICER AWARDED

Members of the Army Nurse Corps have been awarded 1,008 decorations since Dec. 7, 1941, 2 Distinguished Flying Crosses (one posthumous award), 4 Silver Stars for gallantry in action (one posthumous award), 12 Legion of Merit awards, 433 Bronze Stars or Oak Leaf Clusters in lieu thereof, 388 Air Medals or Oak Leaf Clusters in lieu thereof, 5 Soldier's Medals and 60 Purple Hearts (15 posthumous), 103 unit citations or recommendations having been reported to date.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel James E. Kendrick

The Air Medal and the Bronze Star were recently awarded to Lieut. Col. James E. Kendrick, formerly of Greenville, Ala., for service with the 10th Air Force, of which he was assistant staff surgeon and then staff surgeon. The citation which accompanied the Air Medal stated that "on April 6, 1944 Lieutenant Colonel Kendrick volunteered for a hazardous type of flight in an amphibious aircraft to the Bay of Bengal. At the time he knew that this flight would go considerable distance along the coast of enemy territory and that the type of aircraft in which he was flying was subject to easy interception. This aircraft landed and took aboard 9 injured members of a combat crew, to whom Lieut. Col. Kendrick gave medical treatment. His conduct reflects great credit on himself and the Army Air Forces." Accompanying the Bronze Star was a citation "for meritorious service from Nov. 11, 1943 to Aug. 7, 1944. As assistant staff surgeon and later staff surgeon of the 10th Air Force, Lieutenant Colonel Kendrick rendered such exceptional service in the conduct of medical matters as to improve substantially the standards of health and sanitation within this command. By his constant display of industry and medical knowledge the morale and operations of the 10th Air Force were benefited in a high degree. His meritorious service reflects credit on himself and on the Army Air Forces of the United States." Dr. Kendrick graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1933 and entered the service Jan. 28, 1941.

Major Israel Weinstein

Major Israel Weinstein, formerly of New York, was recently awarded the Bronze Star "for meritorious service in combat from March 11 to May 8, 1945 in France, Germany and Austria. As division medical inspector Major Weinstein gave unstintingly of his effort to supervise the health and sanitation of front line troops. He unhesitatingly and with complete disregard of his own safety rode through woods occupied by enemy snipers to reach his destination. On April 20 on the north shore of the Danube between Regensburg and Donauworth, while on his way to see that a satisfactory water point was set up for an advanced detachment of soldiers, he came under heavy mortar fire. Both he and his driver were wounded. His first concern was to give medical aid to the wounded driver. Major Weinstein's ceaseless effort in guarding the health and welfare of the troops has brought credit to himself and reflects the highest tradition of the armed forces." Dr. Weinstein graduated from Columbia University College of Physicians and Surgeons, New York, in 1926 and entered the service Aug. 28, 1942.

Lieutenant Colonel Earle I. Greene

Lieut. Col. Earle I. Greene, formerly of Chicago, was recently awarded the Bronze Star "for meritorious service in connection with military operations as chief of surgical service, 35th Station Hospital, European Theater of Operations, from July 15, 1943 to May 8, 1945. By virtue of his professional qualifications, his superior effort and insistence on maximum performance, Lieutenant Colonel Greene was responsible for the establishment of a surgical service in which the highest professional standards prevailed. During one emergency he personally operated on the more seriously wounded for seventy-two successive hours and saved many lives. His professional judgment has been admirably coupled with extreme devotion to duty and tireless energy, leading to the increased welfare and recovery of several thousand patients." Dr. Greene graduated from Rush Medical College, Chicago, in 1923 and entered the service Feb. 15, 1942. He is at present attached to the surgical service of the 120th Station Hospital.

Colonel Martin E. Griffin

Col. Martin E. Griffin, Washington, D. C., was recently awarded the Legion of Merit for his direction of medical supply activities in Italy. As director of the medical supply branch, public health subcommission, Allied Commission, Colonel Griffin was responsible for the planning, organization and application of medical supply technics from Jan. 1, 1944 to July 31, 1945. The citation said, in part, "Despite the handicap of limited equipment and personnel, Colonel Griffin installed a medical supply system for the Italian civilian population and established numerous medical supply depots throughout Italy. In addition he reestablished production in several Italian pharmaceutical plants, which resulted in a constantly available supply of drugs and serums to combat many dangerous and infectious diseases." Dr. Griffin graduated from the State University of Iowa College of Medicine, Iowa City, in 1925 and entered the service July 1, 1926. In recognition of his services to the Italian government, Dr. Griffin was recently awarded the Cross of Knight Commander, Order of the Crown of Italy, by Crown Prince Umberto.

Lieutenant Colonel Roy V. Boedeker

Lieut. Col. Roy V. Boedeker, formerly of St. Louis, was recently awarded the Bronze Star for meritorious achievement in connection with military operations in the Mediterranean Theater of Operations from Oct. 27, 1943 to March 11, 1945. The citation accompanying the award reads, in part, "As assistant chief of the surgical service of the 70th General Hospital, Lieutenant Colonel Boedeker demonstrated superior performance of outstanding services under the most trying conditions in both North Africa and Italy. The efficiency of the policies inaugurated by the technical and organizational ability of Lieutenant Colonel Boedeker early in the establishment of the hospital were the basis on which all departments of the surgical service operated with maximum effectiveness. Because of the wide range of his military experience, Lieutenant Colonel Boedeker was frequently assigned such tedious tasks as trial judge advocate, summary court officer and plans and training officer and administered the duties involved in each in an outstanding manner, reflecting credit on himself and on the military service." Dr. Boedeker graduated from St. Louis University School of Medicine in 1935 and entered the service July 29, 1941.

Major Morris L. Grover

Major Morris L. Grover, formerly of Providence, R. I., was recently awarded the Bronze Star "for meritorious service in connection with military operations against an enemy of the United States from April 2, 1945 to May 8, 1945 in Germany. Major Grover, division medical inspector, performed his duties in an outstanding manner. Through his professional skill and constant perseverance, disease epidemics were prevented from spreading in stockades peopled by thousands of enemy prisoners of war and displaced persons. On frequent occasions Major Grover disdained enemy fire to assure the maintenance of supply discipline in relation to medical material. The meritorious service of Major Grover is in keeping with the highest traditions of the armed forces." Dr. Grover graduated from Tufts College Medical School, Boston, in 1928 and entered the service Sept. 20, 1941.

Captain Robert Blatherwick

The Bronze Star was recently awarded to Capt. Robert Blatherwick, formerly of Van Hook, N. D. According to the citation accompanying the award, "as assistant American surgeon at the Szubin, Germany, prisoner of war camp from October 1944 to January 1945 he displayed marked devotion to duty and high professional skill in conserving the health and improving the well-being of many hundreds of American officer prisoners of war." Dr. Blatherwick graduated from Northwestern University Medical School, Chicago, in 1943 and entered the service July 13, 1943.

MISCELLANEOUS

DRS. BLAKE AND MAXCY RECEIVE TYPHUS AWARD

The United States of America Typhus Commission Medal was awarded at the Office of the Surgeon General, September 10, to Dr. Francis G. Blake, dean of Yale University School of Medicine, and Dr. Kenneth F. Maxcy, professor of epidemiology at Johns Hopkins School of Hygiene and Public Health, for "exceptionally meritorious service." Both Dr. Blake and Dr. Maxcy, in addition to their other duties, are consultants to the Secretary of War.

The citation accompanying the award to Dr. Blake said, in part, "Dr. Blake initiated and directed investigations of classic importance on the clinical features and prevention of scrub typhus. He made new contributions to the knowledge and control of a form of typhus fever of great military and civilian importance. His wisdom, energy and special competence assured the success of this mission and laid the basis for enduring benefits."

Dr. Maxcy was commended for "his observations made in the field under difficult campaign conditions, which clarified earlier knowledge of the conditions under which this disease occurs and added greatly to information about the special conditions which were making this disease a health hazard of paramount importance to American troops."

AID TO PHYSICALLY HANDICAPPED

Augustine B. Kelley, chairman of the Committee on Labor's Subcommittee on Aid to Physically Handicapped, recently announced a continuation of hearings on the problems of persons who have suffered amputations. The hearing on September 19 included a round table discussion between members of Congress and patients from the Walter Reed Hospital Amputation Center. The War Department showed a film, and a civilian wearer of an artificial limb discussed some of the problems he has encountered. On September 20 the Limb Manufacturers were represented and the medical director of the Disabled American Veterans made a further presentation for that organization.

UNRRA AND GREEK GOVERNMENT PLAN FEEDING CENTERS

A special plan with UNRRA and the Greek government for the feeding of 1,000,000 people was recently dispatched to the headquarters of the United Nations Relief and Rehabilitation Administration. The feeding plan calls for assisting children from birth to 16 years of age and nursing mothers, and the feeding centers are to be established through the country.

These feeding centers will be administered by the Patriotic Foundation, with a general committee in charge. In order to provide a well balanced meal of 600 calories a day, UNRRA will supply the basic food. Meanwhile the Greek War Relief Association will supplement this with other specially imported foods and with local produce purchased out of a sum of $1,370,000 set aside for this purpose.

The idea is not merely to feed the children and mothers 600 calories a day but to insure that they get a diet rich in vitamins and minerals to overcome the effects of malnutrition from which they are suffering. In order to enrich these diets three trained dietitians, under the supervision of UNRRA, have already gone into the provinces. These experts will train local cooks in the use of the basic foods supplied by UNRRA, so that they may be adapted to Greek recipes and prepared so as to preserve their nutriment.

To carry out this project, a large staff of competent personnel will be required. This will include 11 UNRRA regional representatives, who will act as liaison officers and advise the 39 provincial supervisors, 120 assistant supervisors and 35 clerical assistants, all local personnel, whose salaries will be paid by the Greek War Relief Association.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name Rank Address

Alabama

Connell, Isee L., Major, P. O. Box 44, Grove Hill.
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Newman, Lucian, Major, Dadeville.
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Tocker, Alfred M., Capt., Hillman Hosp., Birmingham.

Arkansas

Burton, Francis M., Major, 711 Prospect Ave., Hot Springs.
Hughes, Max, Capt., Hoxie.

California

Clark, Albert G., Lt. Col., 667 Los Palmas Dr., San Francisco.
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Gray, Earl H., Lt. Col., 618 College St., Woodland.
Jones, Samuel A., Capt., 4069 Cromwell Ave., Los Angeles.
Kibby, Sydney V., Lt. Col., 1144 Elizabeth St., Pasadena.
Nelson, Hiram M., Major, 115 Main St., Barstow.
Owyang, Edwin, Major, 1103 Stockton St., San Francisco.
Peck, Samuel G., Major, 809 N. Main St., Santa Ana.
Rice, Arthur H., Major, 1870 Thousand Oaks Blvd., Berkeley.
Rosson, C. T. Jr., Major, 402 W. Grangeville Rd., Hanford.
Schindler, Meyer, Major, 3701 Divisadero St., San Francisco.
Schwartz, Alfred J., Lt. Col., 63 Yolanda Dr., San Anselmo.
Seibly, Robert C., Major, 312 N. Boyle, Los Angeles.
Sherertz, Richard C., Major, 302 Orange Ave., Modesto.
Sicherman, Karl L., Major, 5702 Harold Way, Hollywood.
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Holliday, Henry C., Capt., Southern Mutual Bldg., Athens.
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James, Lemuel P. Jr., Major, Soperton.
Joiner, Hartwell, Major, 557 E. Spring St., Gainesville.
Justice, Frank K., Lt. Col., Atlanta.
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Parish, Frank M., Capt., 711 Union St., Brunswick.
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Wilkes, William A., Capt., University Hosp., Augusta.

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Indiana

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Brown, Harry M., Capt., R. R. 1, Cicero.
Dietl, Ernest L., Major, 1037 Hudson Ave., South Bend.
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Marsh, George W., Capt., Otterbein.
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Parke, Delmar D., Capt., General Delivery, Lizton.
Pierson, Robert H., Capt., 348 N. Main St., Spencer.
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Shonka, Thomas E., Capt., Malvern.
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Swift, Charles H. Jr., Major, Marcus.
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Ryan, Michael J., Capt., 609 N. 17th St., Kansas City.
Siebert, Norman C., Capt., Canada.
Simpson, James C., Major, 308 W. South, Salina.
Smiley, Edward A., Capt., Schwartz Apts., Junction City.
Snyder, Maurice, Lt. Col., 108 Overhill Rd., Salina.
Songer, Herbert L., Capt., Lincoln.

Kentucky

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Noe, Joseph T., Major, Wheelwright.
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PHYSICIANS SEPARATED FROM SERVICE

Name Rank Address

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Massachusetts

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Burgin, Leo B., Major, 147 Kent St., Brookline.
Currier, Donald E., Col., 1558 Mass. Ave., Cambridge.
Damiani, Clito R., Capt., 142 Crafts St., Newtonville.
Hoerr, Stanley O., Major, 159 Kent St., Brookline.
Kendall, Lee G., Lt. Col., 198 Union Ave., Framingham.
Levinson, Samuel S., Lt. Col., 153 Salem St., Malden.
Limauro, Ulysses D., Captain, 64 Eastern Ave., Lynn.
Mulcahy, Richard E., Capt., 20 Donizetti St., Wellesley.
Nash, William C., Major, 15 Webber Ave., Beverly.
Pierce, Frank R., Major, 88 Woodland Ave., Gardner.
Pratt, Henry N., Col., 66 Laurel Rd., Chestnut Hill, Brookline.
Prigot, Aaron, Major, 235 Humboldt Ave., Roxbury.
Quigley, Thomas B., Lt. Col., 124 Commonwealth Ave., Boston.
Ross, James K., Major, Camden and Ohio Sts., Salisbury.
Rowell, F. A. Jr., Major, 1056 Commonwealth Ave., Boston.
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Shuman, Harold I., Capt., 54 Babcock St., Brookline.
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Smith, Alan L., Capt., 32 Washington St., East Orange.
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Yontef, Reuben, Major, 659 Ave. C., Bayonne.

New Mexico

Stark, Walter A., Major, 513 Friedman Ave., Las Vegas.

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Maloney, Paul K., Major, 59 Richmond St., Brooklyn.
May, Conrad G., Major, 269 Colvin Ave., Buffalo.
Messina, Domenic S., Major, 146 Schiller St., Buffalo.
Mott, Walter C., Major, 103 Lenox Ave., Albany.
Norton, William S. 2d, Lt. Col., 111 E. 78th St., New York.
Onorato, Angelo R., Capt., 184 Elm St., Yonkers.
Onorato, Robert R., Capt., 2740 Main St., Buffalo.

PHYSICIANS SEPARATED FROM SERVICE

Name — Rank — Address

New York—Continued

Padykula, Stanley G., Major, 1903 Watson Blvd., Endicott.
Palmer, John R., Major, 7 Gracie Sq., New York.
Patterson, Howard A., Lt. Col., 107 E. 67th St., New York.
Pick, Theodore, Capt., 245 E. 72d St., New York.
Privitera, Anthony T., Major, 1732 Bogart Ave., Bronx.
Quackenbush, William R. S., Capt., 4 West St., Goshen.
Rabold, Bernard L., Major, Commodore Hotel, New York.
Rapoport, Paul, Capt., 1142 Elder Ave., Bronx.
Richardson, Willoughby P., Lt. Col., 41 Park Ave., New York.
Rogers, William K., Major, 3923 212th St., Bayside, L. I.
Rosenblatt, Albert I., 1st Lt., 427 E. 89th St., New York.
Rosokoff, Solomon, Major, 284 Colvin Ave., Buffalo.
Rossano, Thomas A., Major, 4255 Barnes Ave., Bronx.
Rothman, Albert, Capt., 923 Ackerman Ave., Syracuse.
Rubin, Myron M., Major, 863 Montgomery St., Brooklyn.
Scotti, John R., Major, 63 Skillman Ave., Brooklyn.
Scrofano, Charles A., Capt., 332 Delaney St., New York.
Shapiro, Sydney H., Major, 733 Noble Ave., Bronx.
Sharoff, Robert L., Capt., 3831 Lyme Ave., Seagate.
Silverstein, Louis M., Capt., 1553 Pitkin Ave., Brooklyn.
Simensky, Philip F., Major, 1389 W. 6th St., Brooklyn.
Smith, Albert B., Major, 61 S. Broad St., Norwich.
Smith, DeWitt H., Major, 901 Lexington Ave., New York.
Sperling, Nathaniel M., Capt., 344 East 3d St., Brooklyn.
Stalkus, Anthony J., Major, 6946 Grand Ave., Maspeth, L. I.
Stein, Arthur H., Major, 371 State St., Albany.
Stein, Lester, Capt., 365 N. Y. Ave., Apt. 3H, Brooklyn.
Stringer, Sydney W., 1st Lt., 2223 E. Genesee St., Syracuse.
Thomson, John D., Major, 1023 Valesco Rd., Syracuse.
Waffle, Albert H., Major, 241 Trafalgar St., Rochester.
Waugh, David D., Capt., 413 Grove St., Brooklyn.
Weeks, David M., Major, 139 E. 94th St., New York.
Weiss, Arthur M., Major, 235 W. 76th St., New York.
Welch, Charles S., Lt. Col., 286 State St., Albany.
Welling, Joseph G., Lt. Col., 26 Virginia Ave., New York.
Williams, Robert X., Capt., Box 62, Clymer.
Wolfson, Irving N., Capt., 650 W. End Ave., New York.
Zeller, Harry N., Capt., 19 W. Mosholu Pky. N., New York.

North Carolina

Clapp, Hubert L., Major, Box 145, Swannanoa.
Elfmon, Samuel L., Capt., 117 Stedman St., Fayetteville.
Felton, Robert L. Jr., Capt., Sunset Dr., Box 176, Carthage.
Hill, Abel L., Capt., Kings Mountain.
Meriwether, Ben M., Major, 52 Page Ave., Asheville.
Norton, J. W. R., Lt. Col., School of P. H. Univ., Chapel Hill.
Pitts, William R., Major, 252 Cottage Pl., Charlotte.
Ring, Louis J., Lt. Col., 113 College St., Mt. Olive.
Sader, Julius, Major, Brevard.
Sanger, Paul W., Lt. Col., Med. Arts Bldg., Charlotte.
Tyson, Thomas D. Jr., Capt., Mebane.
Wood, Frank, Major, Marion.
Worth, Thomas C., Major, 500 Whitaker Mill Rd., Raleigh.

Ohio

Beren, Irving B., Capt., 3603 Reading Rd., Cincinnati.
Beshara, Edmund F., Major, Lakewood Hosp., Lakewood.
Black, Marion E., Major, 2600 Lee Rd., Cleveland.
Bratten, Paul C., Capt., Sidney.
Brickman, E. M., Major, 11409 Wade Park Ave., Cleveland.
Brinker, H. J., Major, 3302 W. 8th St., Prince Hill, Cincinnati.
Brown, John E. Jr., Major, 2731 E. Broad St., Columbus.
Brown, Winship H., Capt., 226 Curtis Ave., Bowling Green.
Dix, Carr E., Capt., 1430 Madison Ave., Columbus.
Forteza, Rosendo Jr., Major, 2302 N. High St., Columbus.
Junkermann, Carl S., Lt. Col., 1640 Guilford Rd., Columbus.
Kuby, William H., Capt., 3210 Harvey Ave., Cincinnati.
Lacock, Wilford C., Major, Box 13, Beaverdam.
Miller, Noah, Major, 631 Vinita Ave., Akron.
Partington, P. F., Major, 3707 Daleford Rd., Shaker Heights.
Pimsner, Arthur A., Lt. Col., 1385 Manor Park, Lakewood.
Rodabaugh, Galon S., Capt., Basil.
Russell, William E., Capt., Box 7, Genoa.
Ryan, William J., 1st Lt., 237 Russell Ave., Akron.
Salsbery, Otto H., 1st Lt., 2316 Madison Ave., Norwood.
Sating, Robert J., Capt., 3061 Yorkshire Rd., Cleveland Hgts.
Sharretts, Kenneth C., Major, 3304 Burnet Ave., Cincinnati.
Sherman, Martin L., Major, 1718 Malvern Ave., Dayton.
Simon, Karl J., Capt., 1104 39th St. N.W., Canton.
Sternberg, Elmer G., Capt., 169 Wedgewood Ave., Cincinnati.
Suhay, Paul L., Capt., 4866 E. 86th St., Cleveland.

Ohio—Continued

Taylor, David, Major, 112 Glen St., Yellow Spring.
Thomas, Max S., Major, 19 Hurlburt, Akron.
Tingwald, F. L. R., Capt., Youngs. Hosp. Assn., Youngstown.
Toth, Daniel F., Major, 11622 Buckeye Rd., Cleveland.
Turel, Stanley E., Capt., 11420 Lorain Ave., Cleveland.
Vigor, William N., Major, 8081 Brecksville Rd., Brecksville.
Weinberg, Norman H., Major, 624 Maple Ave., Cincinnati.
Weiser, Richard W., Major, 3718 Belmont Ave., Cincinnati.
Williams, Robert E., Capt., 202½ Morton Ave., Barberton.
Wright, Herbert B., Lt. Col., 2903 Broxton Rd., Cleveland.

Oregon

Alden, Warren H., Capt., Box 306, John Day.
Coffey, Robert M., Major, 2220 Hayden Ave., Salem.
Emmens, Thomas H., Capt., 1443 E. Main St., Medford.
Hale, Warren W., Capt., 4809 N. Lombard St., Portland.
Hubert, Marion A., Lt. Col., 466 Highland Ave., Athens.
Kuykendall, John, Lt. Col., 1162 Williamette St., Eugene.
Packard, Frank B., Capt., 3233 N.E. 25th Ave., Portland.
Parrott, Max H., Capt., 2815 N.E. 15th Ave., Portland.
Russell, John P., Captain, 725 Lawnridge Ave., Grants Pass.
Wilbur, Walter I., Major, Box 347, Carlton.

Tennessee

Brown, Cecil H., Capt., 315 N. Fairground St., Jackson.
Carney, Henry M., Major, 2112 W. End Ave., Nashville.
Etter, Charles B., Lt. Col., 1678 Peach, Memphis.
Ingle, Charles W. Jr., Major, 938 Rozelle St., Memphis.
Phillips, Walter A., Lt. Col., Arlington.
Sutherland, Arthur J., Lt. Col., Vanderbilt Univ., Nashville.
Williams, Horace G., Major, 886 Biggs, Memphis.

Utah

Snow, Virgil C., Capt., Cedar City (Temp.).

Vermont

Archambault, Mark D., Capt., 8 Pearl St., Essex Junction.
Foster, Clarence B., Major, Greensboro.
Mosher, Deane F., Capt., 186 Elm St., Newport.

Virginia

Clare, John L., Capt., Box 1377, Danville.
Faudree, Leslie A., Capt., Stanleytown.
Johnson, Marcellus A. III, Capt., 100 Persinger Lane, Roanoke.
Snead, Howard G., Capt., Franklin.
Wieland, Wesley W., Capt., 416 22d St., Virginia Beach.
Woolwine, John H. Jr., Capt., Blacksburg.

Washington

Adams, Julius G., Lt. Col., 1734 Cole St., Enumclaw.
Griffin, Hillis F., Capt., 3102 N. 13th St., Tacoma.
Karel, Jack R., Lt. Col., Tacoma Hotel, 904 A St., Tacoma.
Petersen, Ralph C., Major, 918 4th and Pike, Seattle.
Priest, Allen E., Major, 1717 "A" St., Pullman.
Read, Jesse W., Capt., 800 N. C. St., Tacoma.
Rice, Wayland R., Major, 1332 Harrison Ave., Centralia.
Riley, John B., Lt. Col., Box 309, Sedro Woolley.
Roys, Richard D., Capt., 621 Med. Den. Bldg., Seattle.
Smith, Harry C. Jr., Capt., Box 556, Elma.
Steiner, Jesse F., Capt., 4550 20th Ave. N.W., Seattle.
Weisman, Paul G., Major, Colfax.

Wisconsin

Donovan, Michael M., Capt., 112 Bond St., Neenah.
Hirsch, Raymond S., Major, 318 S. Washington St., Viroqua.
Koschnitzke, Herman K., Capt., 221 N. 6th St., La Crosse.
Krueger, Emil R., Major, Hayward.
Musser, Marc J. Jr., Col., 2126 Chadbourne Ave., Madison.
Pagel, Howard F., Major, Ladysmith.
Stone, Grant C., Capt., 403 Noyes St., Berlin.
Wood, Cordelle A., Lt. Col., 319 W. Main St., Waukesha.

Wyoming

Hellewell, Joseph S., Lt. Col., 937 Uinta St., Evanston.
Mylar, Wilber K., Lt. Col., 2520 Cap. Ave., Cheyenne.

West Virginia

Schwartz, Felix, Capt., McKendree.

Puerto Rico

Landreon, Daniel, Major, Fajardo.

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion. The Report of the Secretary, additional sections of the Report of the Board of Trustees and reports of some councils, bureaus and departments will appear in subsequent issues of The Journal.—Ed.

(Continued from page 367)

Bureau of Investigation

The Bureau of Investigation, by the constant collection and distribution of information, has continued its efforts to promote the educational activities of the Association. Physicians, government agencies, federal, state and municipal authorities, radio stations, newspapers and magazines, Better Business Bureaus, civic and welfare organizations, Red Cross home nursing classes, research workers, teachers, students and laymen in general continue to seek information available in the Bureau's files.

INQUIRIES

Inquiries from these many sources showed an increase over those of 1944. Most numerous were those received from newspapers and magazines, from students in grammar schools, high schools and colleges seeking material on consumer problems and from cadet nurses and Red Cross home nursing classes. These inquiries indicate that the work of the Bureau is attracting the interest of a wider section of the public. These inquirers have sought information not only on "patent medicines" and quacks and fads of many varieties but also on statistical data and bibliographies on other matters of consumer interest.

Many requests for information and counsel have come from publishers of newspapers and magazines or from their advertising departments. Many such requests have come from farm journals. Three of the leading Chicago newspapers frequently call on the Bureau for information.

The Better Business Bureaus of the country turn to the Bureau of Investigation for aid that will enable them to serve their members and the public, and their inquiries and suggestions make it possible for the Bureau to develop important new material for its files.

County and state medical societies have continued to call on the Bureau for information about or investigation of matters that have come to their attention. The assistance of these societies in furnishing the Bureau with data on such matters has been deeply appreciated, as has the cooperation of many other agencies.

Teachers and their pupils in large numbers have sought and received the Bureau's material on "patent medicines" and charlatans in connection with their study of consumer problems and have made it clear that much of this particular material is not obtainable elsewhere. Physicians continue to inquire about questionable practitioners and about dubious methods of treatment brought to their attention by patients. The general lay public, as before, has itself sent in many such inquiries. Many inquiries, particularly those from students, dealt with more than one item, and some of them included long lists, as indicated by the fact that 3,000 inquiries pertained to 4,600 separate subjects. Among the leading subjects of inquiry in 1944 were diabetes "cures," vitamin preparations, aspirin, so-called "alkalizers," laxatives, cancer "cures" and various products that are widely advertised over the radio and in the lay press.

OTHER ACTIVITIES

The Bureau prepared a total of forty-one articles for THE JOURNAL, including seventeen presentations of abstracts of one hundred and twenty-seven Notices of Judgment issued by the Food and Drug Administration, three presentations of abstracts of twenty-five Cease and Desist Orders and fifteen of abstracts of one hundred and six stipulations by the Federal Trade Commission. There also were five articles presenting abstracts of nine fraud orders issued by the United States Post Office Department.

The distribution of pamphlets and of the book Nostrums and Quackery and Pseudo-Medicine was continued as in previous years, and physicians and educators were provided with the Bureau's slides on nostrums and quackery for educational purposes.

The Bureau has continued its cooperation with the Post Office Department, the Federal Trade Commission and the Food and Drug Administration.

Bureau of Exhibits

The Bureau of Exhibits is concerned primarily with graduate medical instruction and secondarily with health education of the public. During the year 1944 the Bureau cooperated in meetings in forty-one states and in the District of Columbia. There was a pronounced increase in requests from the armed forces and, as in the past, such requests were given special consideration. Because of the war it was not possible to comply with requests outside the limits of the continental United States.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Chicago session emphasized war medicine. The United States Army, the United States Navy and the United States Army Air Forces not only presented noteworthy exhibits of their own but lent generous aid in men and materials to other features of the meeting. Many medical officers from the armed forces and from the United States Public Health Service showed their own exhibits dealing with war problems. An excellent group of exhibits on tropical medicine caused much favorable comment, while exhibits on industrial health in wartime were extensively displayed.

There were four special exhibits sponsored by the Committee on Scientific Exhibit of the Board of Trustees. The special exhibit on fractures, under the guidance of a committee headed by Dr. Kellogg Speed, was as popular as ever. A group of soldiers from Camp Grant acted as patients in the demonstrations. The special exhibit on the treatment of burns was presented by a committee consisting of Dr. Stanley J. Seeger, chairman; Capt. Ernest W. Brown (MC), U. S. Navy, and Capt. Joseph E. Hamilton, M. C., A. U. S. The exhibit covered all phases of the treatment of burns. The special exhibit on chemotherapy and infectious diseases was presented by a committee of which Dr. Chester S. Keefer was chairman. The subject of tropical diseases, arranged with the help of Dr. Henry E. Meleney, another member of the committee, received much emphasis. A group of physicians who had spent many years in the tropics demonstrated in this exhibit throughout the week. The special exhibit on rehabilitation was presented by the Council on Industrial Health and the Council on Physical Medicine of the American Medical Association with the assistance of representatives of the Army, Navy, Veterans Administration and Federal Security Agency.

Each of the sixteen sections of the Scientific Assembly sponsored groups of exhibits dealing with the various specialties of medicine. The total number of these exhibits was much smaller than usual because of the limitation of exhibit space in the Palmer House, but the caliber of the exhibits that were shown was very high. Great credit is due those exhibitors who, under the difficulties of wartime, were able to assemble so much excellent material. The emphasis of the exhibits was placed, as usual, on the problems of the physician in general practice rather than on the interests of the specialist. The section representatives to the Scientific Exhibit deserve special mention for their assistance.

Motion pictures were shown in the Casino at the Morrison Hotel, three blocks from the Scientific Exhibit at the Palmer House. There was but one motion picture theater, and most of the films were presented twice during the week. As in previous years, no films were shown in exhibitors' booths.

The Committee on Awards, of which Dr. Vincent W. Archer was chairman, performed its task conscientiously and with credit. Twenty-three awards were made, including six medals, eight certificates of merit and eight honorable mentions. One certificate of appreciation was awarded to an exhibit from Brazil.

An interesting trend in graduate medical instruction is indicated by the question and answer conferences. At the Chicago session there were two of these in rooms adjoining the exhibit hall. Rheumatic fever was presented under the auspices of the Section on Pediatrics in cooperation with the Rheumatic Fever Committee of the American Academy of Pediatrics. Heart and peripheral vascular disease was conducted by the Section on Practice of Medicine in cooperation with the American Heart Association. Consultants were on duty in each conference room, on a prearranged schedule, during the entire week. So popular were these conferences that requests have been received for half a dozen such conference rooms on various subjects at the next annual session.

ASSOCIATION EXHIBITS

Graduate medical instruction through the use of exhibits still further increased during 1944. The demand exceeded all previous years. Some of the requests could not be complied with because the exhibits were already reserved for other occasions, while several of the meetings for which material had been reserved were canceled. There were seventy-one exhibits sent to thirty-six meetings of medical and scientific organizations. The Director of the Bureau either attended the meetings personally or made arrangements for an attendant from the American Medical Association staff or otherwise.

Health education was promoted with thirty-three exhibits at twenty-five meetings, fairs and expositions. The cancellation of most of the large fairs and expositions reduced the activity to the lowest level in several years. The difficulty of transporting the exhibits by freight and express was an additional factor interfering with this activity.

The total number of exhibits available for loan is fifty-four. During the year nine new exhibits were made and ten old ones discontinued.

MOTION PICTURES

The demand for motion pictures has exceeded all previous years. Additional copies of old films, together with a few new ones, have made it possible to send out 575 pictures to 333 meetings, the chief recipients being army camps, medical schools, hospitals and county medical societies. There are now twenty-seven films in the motion picture library, three old ones having been dropped during the year and five new ones added. Reservations are often made months in advance, and most of the films are booked as often as the difficulties of transportation will allow. The secretary of the Bureau has continued the good work she has been doing in the supervision of this activity, and it is due to her efficiency that it has functioned so well.

There have been hundreds of requests for information concerning films distributed by other organizations. Often a physician desires a motion picture on a special subject to fit into the program of the meeting which he is preparing. As far as possible these requests have been complied with, entailing much correspondence.

THE ARMED FORCES

Assistance to the Army, Navy and Air Force were given special consideration. During the year one hundred and forty-eight motion picture films were sent to posts and camps in twenty states for purposes of medical instruction. Health exhibits were lent to the Army on three occasions for the instruction of enlisted personnel. In spite of the exigencies of war, with sudden transfer of officers and other difficulties, this cooperation was carried on as far as facilities would permit.

MUSEUMS

Cooperation with museums has been maintained, with permanent exhibits on health education at the Chicago Museum of Science and Industry, the Cleveland Health Museum and the Toledo Museum of Science. Temporary exhibits have been lent to the Cayuga Museum of History and Art at Auburn, N. Y., while at the Newark Museum at Newark, N. J., as well as at several of the other museums, question and answer files have been on display together with current copies of HYGEIA. Question boxes have been continued at the museums in conjunction with the displays. The questions are sent to the American Medical Association and answered by the Bureau of Health Education.

The American Museum of Health, New York, which has in its possession a considerable amount of exhibit material previously shown by the American Medical Association at the New York World's Fair, is still without permanent quarters. However, the exhibit material has been on display in other cities from time to time.

Museums, with their ready made audiences and with rather ideal display facilities, offer a great opportunity for exhibits on health education. County medical societies should not neglect this valuable contact with the public. The Bureau of Exhibits will cooperate with county societies as far as possible.

PUBLICATIONS

The second edition of the book Fundamentals of Anesthesia was published during the year. The fifth edition of the Primer on Fractures is nearly exhausted, and the Exhibit Committee on Fractures is preparing additional material for a sixth edition.

The pamphlets Varicose Veins and Food Charts have been revised and reprinted. They still remain popular.

A pamphlet on Chemotherapy in Infectious Diseases, prepared by Dr. Chester S. Keefer, Dr. Henry E. Meleney and Dr. Austin E. Smith, in connection with the special exhibit on the same subject, has received wide distribution.

Several pamphlets were prepared and distributed in connection with the special exhibit on burns. The Local Treatment of Burns, by Dr. Roy D. McClure and Dr. Conrad R. Lam, Treatment of Burns: General Care of the Burned Patient, by Dr. Henry N. Harkins, Establishment of a Skin Cover Following Thermal Burns, by Dr. Earl C. Padgett and Dr. John H. Gaskins, Electric Burns, by Dr. Hart Ellis Fisher and Dr. George Howard Irwin, have proved popular. The pamphlet Chemical Burns of the Eye, prepared by Dr. Alan C. Woods, Dr. William F. Hughes Jr., Dr. Roy O. Schulz and Dr. A. E. Maumenee, was printed but not distributed. Authorization for publication of the material contained therein was first given and then rescinded because of its confidential nature in the war effort.

MISCELLANEOUS ACTIVITIES

The Director of the Bureau has kept in close touch with the various Councils and Bureaus of the Association so that he could properly represent the work of the Association when exhibits were presented at state medical meetings and other occasions.

The Director of the Bureau has served on the National Advisory Council of the Cleveland Health Museum and the Committee on Exhibits of the Society of Illinois Bacteriologists. He has been a member of the Council of the Public Health Education Section, the Committee on Cost Accounting for Health Education and the Committee on Compensation for Public Health Workers of the American Public Health Association. He has lectured at the University of Illinois College of Medicine, where he is assistant professor of bacteriology and public health.

Students in health education both from this country and from the Latin American countries have been given much information concerning exhibits and motion pictures on their visits to Association headquarters.

Conferences have been held during the year with the directors of scientific exhibits of state medical societies concerning the exhibit programs for those societies.

The Bureau also collaborated with the American Academy of Ophthalmology and Otolaryngology in connection with their exhibit program.

Articles have been prepared for HYGEIA and book reviews for THE JOURNAL.

Bureau of Public Relations

During the past year, the Bureau of Public Relations of the American Medical Association has continued to expand its activities, extending to the medical profession and to the public information regarding the work of the Association and the important progress being made by medical science. This Bureau is not, primarily, one for propaganda. Its activities do induce support of the position of the American Medical Association and of the medical profession by keeping the public fully informed regarding medical affairs and medical progress.

During 1944 the number of individual inquiries coming to the Bureau of Public Relations from newspapers, magazines, radio stations and other mediums of public information totaled more than 5,300, a slight increase over the number received the previous year. This is particularly impressive in view of the concentration of the nation's energies on war work. Many of these inquiries pertained to medical activities other than those directly related to the war, thus demonstrating the effectiveness of the Association's policies in furthering public knowledge regarding medical science. More than 91,000 individual items based on articles that appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and in HYGEIA were published in daily newspapers during the year. This number is estimated on the basis of press clippings received in the headquarters office and represents an increase of approximately 7,000 over 1943. These articles were not as long as the average ones published in newspapers in 1943, owing to space limitations imposed on American newspapers by the paper shortage. Significantly, however, there was an increased use of articles based on information emanating from the Association despite the amount of space being devoted to the war by the American press.

The AMERICAN MEDICAL ASSOCIATION NEWS, containing abstracts of articles from THE JOURNAL and HYGEIA, is sent out by this Bureau to some 1,200 newspapers, press magazines, radio stations, industrial house organs, medical journals and bulletins. This publication, prepared under the supervision of the Editor of THE JOURNAL, has become a recognized medium for the dissemination of news pertaining to medical activities and medical progress. All of those receiving it have made specific, voluntary requests to have their names placed on the mailing list.

The aforementioned data regarding inquiries received by this Bureau and articles appearing in newspapers demonstrate that editors, reporters, feature writers, news commentators and managers of radio stations throughout the country look to the headquarters office of the American Medical Association as a dependable source of information regarding medical matters. They have sought information and advice on every phase of the multiple activities of the Association and of the profession. The activities of this Bureau in providing guidance to these people has resulted in a decided decrease of inaccurate information regarding medical matters appearing in the daily press. In hundreds of instances inaccurate information of such a nature has been corrected in process of publication, and in many other hundreds of cases such inaccurate information has been completely eliminated as a result of the advice and service offered by this Bureau.

Direct contact is maintained in Chicago by this Bureau with the headquarters of all the press associations and radio chains, and during 1944 at least two articles concerning material published in THE JOURNAL or HYGEIA were sent out each week from Chicago on press association wires.

Together with other bureaus and councils of the Association, the Bureau of Public Relations has played a major role in assisting in medical phases of the nation's war activities. Those associated with this Bureau have served as consultants to or members of information and other committees of practically every branch of the federal government in regard to medical phases of the war.

All of these activities have played a vital role in bringing about an understanding on the part of the American people of the contributions being made by the Association and medical science to the public welfare.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

During the past year the major concern of the Council on Medical Education and Hospitals has been with the supply of premedical and medical students.

THE SUPPLY OF PREMEDICAL AND MEDICAL STUDENTS

The trend of events can probably best be visualized by noting certain facts about the composition of students now in medical schools. The third and fourth year classes contain nearly 90 per cent Army and Navy students. The sophomore class contains fewer students in this category, although over 80 per cent of the class are A. S. T. P. and Navy V-12 students. The sharply decreased input of such men into our medical schools is emphasized by the drop in Army and Navy students in the current first year class, which totals about 37 per cent. It was possible for this first year class to be filled primarily because of a temporary Selective Service adjustment. In April 1944 the Selective Service System abolished further occupational deferments of premedical students effective July 1, 1944. The Selective Service System permitted the enrolment of approximately 2,000 students before July 1, 1944 even though some of these men had not completed their premedical training. This adjustment was temporary and, unless regulations are changed, these numbers will not be available under Selective Service deferment for the next entering class in 1945.

It is estimated that Army and Navy students completing their premedical training will fill freshman vacancies in the 1945 entering classes to the extent of approximately 50 per cent of the places. This will virtually deplete the supply of premedical students in the Army and Navy programs so that only approximately 10 per cent of the freshmen places will be filled by students in the Navy program and none of the places by students in the Army program in 1946. This will necessitate selection at that time of 90 per cent of the entering class from civilian sources.

It is highly improbable that medical schools can secure qualified civilian students to fill 50 per cent of the places in the entering classes of 1945, and it is utterly impossible for them to secure 90 per cent of the freshmen from civilian sources in 1946. The civilian sources from which these students must be drawn include women, physically disqualified men and veterans plus perhaps a relatively few students who finish their premedical work before reaching the age of 18. Whether the students in the latter category will be deferred on reaching this age during the medical studies is uncertain. In any case there is general agreement that, should schools be limited to these sources for freshman material, there will result either a pronounced reduction in enrolments or a serious decrease in the quality and qualifications of the entering students.

Even though the entering classes in 1945 should in some way be nearly filled, it is highly important to remember that no premedical students have entered the A. S. T. P. Program since June 1944 and that no students are entering the Navy V-12 premedical program at the present time. In short, there is an utterly inadequate number of premedical students being trained for future admission to medical schools.

All this was foreseen a year ago and presented to the House of Delegates in the last annual report. Taking cognizance of these facts and estimates, the House of Delegates of the

American Medical Association passed the following resolution at its opening session, June 12, 1944:

WHEREAS, The present policy of the Army and the Selective Service System in preventing the enrolment of a sufficient number of qualified medical students will inevitably result in an overall shortage of qualified physicians with imminent danger to the health and well being of our citizens; therefore be it

Resolved, That it is imperative that immediate action be taken by the President or the Congress of the United States to correct the current drastic regulations, which result in a restriction of the number of students qualified to enter the courses of medical instruction in approved medical schools.

This resolution was sent to the President, the secretaries of War and Navy, the director of Selective Service and all members of the House and Senate military affairs committees. The responses to this communication clearly indicated that the governmental departments and agencies involved were unwilling to make any adjustment.

It seemed apparent that the only remaining approach was to the Congress of the United States. A bill providing for the deferment of appropriate numbers of premedical students was introduced as H. R. 5128 by Representative Louis E. Miller of Missouri. Hearings were never held on this bill.

In the ensuing weeks and months every effort was made in further conferences and communications to bring about the necessary adjustment on the part of Selective Service and the Army and the Navy as well as to bring to the attention of senators and congressmen the alarming seriousness of the situation. An analysis of the problem was made by the Secretary of the Council on Medical Education and Hospitals before the Subcommittee on Wartime Health and Education of the Committee on Education and Labor of the Senate during hearings of that subcommittee pertaining to the health of the nation. Since that time Senator Claude Pepper of Florida has evinced a growing concern over this matter. In February 1945 conferences were held with representatives of Senator Allen J. Ellender of Louisiana, who also has become interested in this problem. At that time agreement was reached as to the general lines which an appropriate legislative measure ought to follow to meet the needs. On Feb. 26, 1945 Senator Ellender introduced into the Senate bill S. 637, which was referred to the Committee on Military Affairs.

The provisions of this bill are generally acceptable to the Council on Medical Education and Hospitals of the American Medical Association and likewise have the full support of the executive council of the Association of American Medical Colleges. Hearings were conducted by the Senate Committee on Military Affairs on May 1, 1945. The Council on Medical Education and Hospitals was represented by Drs. Harvey Stone and Victor Johnson. The bill was opposed by the Army, Navy and Selective Service System. At the time of going to press, the Committee has made no report.

Two days after this bill was introduced the Secretary appeared before the Senate Committee on Education and Labor to make a statement supporting the Hill-Burton Senate Bill 191 providing for hospital construction supported in part by federal funds (see also page 000). In connection with that statement the Secretary again pointed out the inadequacy of the supply of qualified premedical and medical students for future classes and stressed the necessity for passage of a bill carrying the provisions of the Ellender bill. Considerable interest was evinced in this problem and there were indications that the Senate Committee on Education and Labor would support the measure.

It is probable that events subsequent to the publication of this report will necessitate a supplementary report from the Council to the House of Delegates.

THE SUPPLY OF PHYSICIANS

Even if the Ellender bill is passed or appropriate measures of other kinds are instituted to insure a continuation of the supply of premedical and medical students, there is likely to be a considerable reduction in the number of physicians available for civilian medical care after the war. It appears probable that there will be the following increased demand for physicians which did not exist before the war:

Army.—A regular standing army including men enrolled under a compulsory military training program might total 2,000,000 men, requiring 10,000.

Navy.—The peacetime Navy will probably require about 5,000.

Veterans Administration.—Manning the veterans' hospitals may require about 15,000.

Liberated Countries.—The widespread destruction of hospitals and medical schools and casualties among physicians in liberated countries of Europe and in China will require the aid of unknown numbers of physicians from the United States.

Replacement of Casualties.—The number of physicians killed or incapacitated by the war requiring replacement is another unknown quantity.

Total.—The probable number of doctors needed after the war in addition to numbers before the war might be conservatively estimated at more than 30,000.

Even if the numbers of enrolments, admissions and graduates are maintained at the present wartime levels, only about one half of this need would be met. Under the accelerated program of medical education there were 10,357 medical graduates in the two year period from July 1, 1942 (when acceleration started in most medical schools) to June 30, 1944. By June 30, 1945 there will be an additional estimated (by medical schools) 9,844 graduates.

This totals 20,201 graduates during a complete three calendar year cycle involving four graduating classes. If the accelerated program is continued in our medical schools, there will be an additional approximately 20,000 graduates in the ensuing three year cycle from July 1, 1945 to June 30, 1948. During this whole six year period of accelerated medical education there will be a total of approximately 40,000 graduates.

During this same six year period approximately 24,000 physicians have died or will die, since the death rate of civilian physicians is increasing. As a consequence there will be available after the war only some 16,000 additional physicians to meet the estimated increased need of over 30,000. The deficit will be far greater unless there is made some such adjustment as is provided for in the Ellender bill.

THE ACCELERATED PROGRAM IN MEDICAL SCHOOLS

Even though the input of Army and Navy students into our medical schools will sharply decrease, those men who are in the A. S. T. and Navy V-12 programs in medical schools will be continued until graduation. Therefore it is necessary that medical schools continue the accelerated program in accordance with contracts held by the Army and Navy. However, most medical schools plan to return to the plan of annual admissions of medical students. Annual admissions are entirely compatible with acceleration after the student enters medical school. The result will be the completion of the work in three years, although there will be fewer students admitted in any one calendar year. Even though there are annual admissions commencing in 1945 there will necessarily be graduations every nine months until the year 1948, so that the increased numbers of students graduating in the past three years will be maintained in the ensuing three years.

LICENSURE UNDER THE ACCELERATED MEDICAL SCHOOL PROGRAM, THE PREMEDICAL A. S. T. AND NAVY V-12 PROGRAMS, AND THE NINE MONTH INTERNSHIP

All states in the Union, as well as the District of Columbia, Alaska, Hawaii and Puerto Rico, have made certain adjustments in their licensure legislation or practices, where such were required, to facilitate the licensure of graduates under the accelerated programs, at least for the duration of the war.

The information received from those states whose licensure laws include specific premedical requirements seems to indicate that there should be no licensure difficulties encountered by students whose premedical work was taken under the A. S. T. or the Navy V-12 or comparably accelerated civilian programs.

Of the twenty-three states requiring an internship for licensure, at least for the duration of the war, eight states (and Alaska) will accept a nine month internship as fulfilling the internship requirement. Twelve states (plus the District of Columbia and Puerto Rico) require an additional three months in a civilian hospital or military service and will withhold the license until this is completed but will permit applicants for licensure to write the examination on completion of the nine month internship. In three states physicians are not eligible to take the examination until after completion of a year's internship, three months of which may be in the military

service. Officers seeking licenses in these three states must delay licensure until after the war or seek furloughs to take the examinations. In the past it has been possible for officers to obtain furloughs for this purpose. Four states specifically require the military medical service to be in a military hospital.

FACULTY MEMBERS IN WAR SERVICES

On July 1, 1944 the seventy-seven medical schools and schools of basic medical sciences in the United States had contributed a total of 5,828 of its faculty members to the armed forces. This number is somewhat larger than the 5,637 of last year and is still about 10 per cent of the medical officers in the armed forces. It seems apparent that medical schools have contributed approximately as large a proportion of their faculties to the armed forces as the proportion of physicians not engaged in academic work who have been commissioned.

This depletion of faculties continues to handicap the teaching of more medical students and in less time than in normal years. Further faculty reductions have resulted from increasing participation in war research and special war assignments.

The loyalty and devotion of faculty members remaining to carry on the increased work of the medical schools under adverse conditions is to be highly commended. In the demobilization period special consideration should be given to the preferential early release of physicians on medical school faculties, to restore the quality of medical instruction to a higher level as soon as possible. Conferences on the possibility of such arrangements have been held with the appropriate authorities.

Estimated Requirements and Residencies Available

Residencies Desired	Estimated Number of Additional Residency Places Required (Two Year Demobilization)	Additional Residencies Available in 256 of the 1,042 Hospitals
Anesthesiology	71	58
Dermatology and syphilology	108	34
General training	705	69
Internal medicine and subspecialties	1,089	322
Neurosurgery	14	33
Obstetrics-gynecology	615	167
Ophthalmology	172	55
Orthopedic surgery	201	85
Otolaryngology	185	65
Pathology	126	112
Pediatrics	253	86
Plastic surgery	39	13
Psychiatry and neurology	200	224
Radiology	135	104
Surgery	1,595	263
Urology	108	62
Totals	5,636	1,752

POSTWAR MEDICAL TRAINING

Under the direction of Lieut. Col. Harold C. Lueth, Liaison Officer of the Surgeon General, a study has been conducted by the Committee on Postwar Medical Service pertaining to the educational plans of medical officers after the war. On the basis of early returns in this study estimates were made by the Committee on Postwar Medical Service and the Council on Medical Education and Hospitals concerning the probable requirements to meet the needs of all the 60,000 medical officers in the armed forces. These estimates were published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 11, 1944, pages 709-711. This material was given wide distribution. Reprints were sent to several thousand individuals, agencies and institutions. Returns have now been received and analyzed from 21,000 medical officers. On the basis of these more complete returns it is likely that some modifications have been made in estimates of the overall demand and the total expansion required in educational facilities. However, the Council on Medical Education and Hospitals proceeded to the necessary task of determining available places in hospitals and other educational institutions to accommodate returning medical officers. To this end, in cooperation with the Committee on Postwar Medical Service, the Council directed a communication to all approved intern and residency hospitals requesting their aid in the development of educational facilities for returning medical officers. Replies have now been received from 256, or approximately 25 per cent, of the 1,054 civilian hospitals approved by the Council for intern and/or residency training. This group has indicated that 1,752 additional residencies can be provided in the various divisions of medicine and surgery. Of this number 1,042 represent expansions of residency services already approved by the Council. From the data secured on the educational requirements of medical officers it has been estimated that about 5,700 additional residencies will be needed if the demobilization extends over a period of two years.

From the data contained in the accompanying table it seems probable that the hospital facilities will be adequate to meet the anticipated demand for postwar graduate training. The estimated requirements in some fields can practically be fulfilled by the group that has already reported. In most of the other specialties the required facilities will no doubt be available when an additional 25 to 50 per cent of the hospitals have replied. The main exception is in the general surgical field, where 263 places have now been reported in relation to the estimated need of 1,595. Few hospitals have supplied information regarding mixed residency training, but it should be noted that all hospitals approved for internships are likewise accredited for general residencies. There should be no considerable difficulty, therefore, in providing the number of general training courses requested by the medical officers.

It is gratifying that hospitals are seriously facing their responsibilities in the postwar educational field and, through committees, are devoting considerable study to possible expansion of educational facilities without a deterioration in the quality of training. Interhospital collaboration in these plans has developed in a number of areas usually centering in a medical school hospital or a large hospital not associated with a medical school but which has a well established program of education for house officers.

In carrying out these objectives the Council has worked closely in collaboration with the Committee on Postwar Medical Service, the Advisory Board for Medical Specialties, the various specialty boards themselves and a number of professional organizations in the country devoted to one or another of the specialty fields.

Although the major task appears to be that of providing hospital facilities for definitive training of men in residency, internship and fellowship fields, progress has also been made in the development of review and refresher courses for men who desire briefer periods of training. This work is being carried out in close collaboration with the Association of American Medical Colleges, to which the Committee on Postwar Medical Service has assigned the major responsibility in this field, since medical schools and their faculties will play an important role in the development of review and refresher courses.

The appointment of veterans to house officerships will be facilitated by a policy in effect under the Procurement and Assignment Service in which veterans need not be counted in house officer quotas at any time.

VETERANS' BENEFITS FOR MEDICAL STUDENTS

The educational section of the "G. I. Bill of Rights" provides that "any person who served in the active military or naval service on or after Sept. 16, 1940 and prior to the termination of the present war and who shall have been discharged . . . and whose education for training was impeded, delayed, interrupted or interfered with by reason of his entrance into the service . . . and who either shall have served ninety days or more . . . shall be eligible for and entitled to receive education or training under this part. . . . Discharged service men under 25 years of age at the time they entered the service are assumed to have had their education impeded or delayed, while those 25 years of age or over at the time they entered the service will be expected to supply evidence that such a delay or obstacle to their education occurred." Three months of military service entitle the veteran to one year of further education; twelve months of

service, two years of education; twenty-four months of service, three years of education.

The bill provides for tuition and fee benefits and subsistence benefits. The tuition and fee benefits are paid to the school for tuition, fees, books, equipment and other expenses but may not exceed $500 for an ordinary school year. The subsistence benefits paid to the veteran are $50 per month if there are no dependents, or $75 per month if the veteran has a dependent or dependents.

The law clearly provides that a veteran eligible for benefits must be fully acceptable to the school he seeks to enter. In medicine, this means that an applicant must meet the civilian medical school admission requirements, including scholastic and other qualifications. This provision is especially important in medicine, since the lives of his patients are in the hands of the physician. Only fully qualified men and women can be trained for such responsibilities. It would serve neither the public nor the veteran for medical schools to admit unqualified ex-service men.

VETERANS' BENEFITS FOR PHYSICIANS DESIRING POSTGRADUATE AND GRADUATE TRAINING

A subcommittee of the Committee on Postwar Medical Service working with the Council has held extensive correspondence and conferences with the Veterans Administration concerning the applicability of the G. I. Bill of Rights to physicians who will seek additional hospital and other advanced training after the war. The Veterans Administration was of the opinion that any physician who is now in any of the branches of the service and has been on active duty for more than ninety days will be eligible for those benefits described in the preceding section.

Even those who are more than 25 years old and desire refresher or other courses will no doubt be considered eligible even though they may have entered the Army at a time when their education might have been assumed as completed, since the law in providing refresher and retraining courses is naturally to be interpreted in a liberal spirit.

The law provides that the administrator shall pay to the educational or training institution the tuition costs and fees that are customarily charged and may also pay for books, supplies and equipment and other necessary expenses, provided the payments with respect to any one person should not exceed $500 for an ordinary school year. These payments are not to be paid to "establishments furnishing apprentice training on the job." The law provides that, if the institution has no established tuition fee or if the administrator deems the established tuition fee to be inadequate compensation, the administrator is authorized to provide for the payment, again, however, with the $500 ordinary school year limitation.

Applying these provisions of the law to the case of residencies in our hospitals and courses in our universities for our physician veterans, the Veterans Administration was of the opinion that there would be no difficulty about the payment of tuition and fees by the administrator for those physician veterans who elect clinical courses in university and other acceptable hospitals where a formal educational program has been inaugurated. The administration was also of the opinion however that, provided the hospital can be certified to the administrator by the appropriate state agency as a competent educational and training institution, the administrator may fix the tuition to be paid to such an institution under the provisions of the law. If the hospital is certified as a bona fide educational institution, the tuition for the physician veterans can be paid to that hospital even though the hospital still continues to pay a stipend to the veteran.

CREDIT FOR COURSES TAKEN UNDER MILITARY AUSPICES

The armed services offer men and women on active duty a variety of educational opportunities. Some of the courses offered by such organizations as the United States Armed Forces Institute, Madison 3, Wis., are at the college level and warrant the subsequent awarding of college credit by a civilian institution. A committee of the American Council on Education is preparing "A Guide to the Evaluation of Educational Experiences in the Armed Services" to assist colleges in determining what academic credit ought to be allowed for such work. In this venture the Council on Medical Education and Hospitals has cooperated with the United States Armed Forces Institute by inclusion of a statement concerning such courses in its booklet "Choice of a Medical School." This booklet advises prospective medical students concerning their professional and preprofessional studies and has a wide circulation. Nearly ten thousand copies of this booklet were provided the Army and the United States Armed Forces Institute for distribution to various agencies and military units throughout the world in assisting men in the armed forces to conduct some of their premedical studies before discharge. The Council on Medical Education and Hospitals will accept the premedical credit allowed a student by an approved college which follows the recommendations of the guide previously mentioned and prepared by the American Council on Education.

LATIN AMERICAN PHYSICIANS

The Council is deeply interested in the development of educational opportunities for Latin American physicians, who are coming to this country in increasing numbers for graduate training. The decline of learning and science, including medical education, in Europe during the war will tend to increase the importance of the United States as a center for advanced training for years to come. Thus we may expect a continual increase in the number of Latin American physicians who will be seeking further training in the schools and hospitals of the United States. This tendency deserves the full support of the medical profession in this country, which will share in a mutually beneficial exchange of ideas and the cementing of lasting inter-American friendship.

A study is now being made by the Council to determine the number of Latin American physicians currently in training in the United States, the type of training involved and the extent to which educational facilities in hospitals may need to be expanded to meet possible future needs. Qualified medical graduates of Latin American schools may from the Council's point of view serve as interns and resident physicians in approved hospitals. To assist such applicants in obtaining suitable appointments, lists of available internships and residencies will be prepared and will also be furnished to the various agencies that are interested in the training of medical personnel from the other American republics. The Council has already established contacts with the following Washington agencies: the Institute of International Education, the Division of Science, Education and Art of the State Department, the Office of the Coordinator of Inter-American Affairs, the Institute of Inter-American Affairs and Pan American Sanitary Bureau.

The directing board of the Procurement and Assignment Service has announced that graduates of Latin American schools will not be counted in hospital quotas at least for the first nine months. This ruling should do much to facilitate the appointment of Latin American physicians and thus help to establish a wider scope of hospital training for them in the United States.

It is recognized that Pan American problems in medicine go beyond those of medical education even though this may be the most important aspect of the problem at the present time. Therefore it might be desirable to establish a committee of the American Medical Association to deal with the overall problem, which will become of increasing importance after the war. Such a committee will lend considerable prestige to such activities as the Council might undertake.

GRADUATE CONTINUATION COURSES FOR PRACTICING PHYSICIANS

The necessity for continuation courses of study in the medical specialties has never been more urgent than at the present time. Physicians in civilian practice have been compelled to enlarge their field of activity and to refresh their knowledge of the intricacies of modern diagnosis and treatment. Physicians in military service and returning medical officers are also encountering problems. The demand for all means of instruc-

tion is greater than it has ever been. Medical educators and interested organizations and institutions throughout the country are attempting to assist physicians called on to assume new responsibilities by offering refresher courses or continuation courses and by the presentation of scientific papers or lectures on timely subjects. These individuals, who will give or have given so generously of their time to participate in the instructional programs, constitute a large and distinguished faculty of medicine.

The Council on Medical Education and Hospitals publishes semiannually advance information concerning postgraduate continuation courses for practicing physicians. These include courses in a wide variety of fields in clinical medicine and the basic sciences. The courses are for variable periods from a few days to several months. Some are concentrated full time courses and others are part time. In THE JOURNAL for Dec. 23, 1944 there were listed 354 such courses available during the first half of the current year. The opportunities listed are offered by hospitals, medical schools, graduate medical schools or other agencies in twenty-one states and include thirty-nine specialty or subspecialty subjects.

HILL-BURTON BILL

Senate Bill 191, introduced on Jan. 10, 1945 by Senator Lister Hill of Alabama for himself and Senator Harold Burton of Ohio, provides for an amendment of the Public Health Service Act to authorize grants to states for surveying their hospital facilities and for planning and constructing additional hospitals and health centers. The Secretary was designated to appear before the Senate Committee on Education and Labor, to which this bill was referred, to indicate to the committee that the Board of Trustees of the American Medical Association had agreed to the general policies of the Hill-Burton bill, since its provisions appear to be within the platform of the American Medical Association. In these hearings the Secretary expressed gratification with the scientific approach manifested in this bill. The manner in which the existing faulty distribution of hospitals is to be assessed conforms to the best scientific procedures.

The proposed surveys, conducted by state agencies, with the assistance of all groups concerned with hospital care, should provide the information requisite for an intelligent program of hospital construction in areas deficient in hospital facilities.

The sound approach to a solution of the problems of better distribution of medical care and hospital facilities on the part of the Committee on Education and Labor is reflected not only in the provisions of this bill but in the approach to these problems by the Subcommittee on Wartime Health and Education, under the chairmanship of Senator Claude Pepper. The interim report of this committee, published in January 1945, is an admirable document, containing invaluable information for the formulation of programs for improved medical care.

Certain of the procedures suggested in this report and in the hospital construction bill are practically identical and equally sound. The report recommends that "state programs should be drawn up by state health planning commission" and "before federal funds could be granted, however, overall state plans and individual projects should be reviewed and approved by the United States Public Health Service to make sure that they meet certain standards of construction, operation and complete, coordinated service." Equally significant is the recommendation that "grants to both public and voluntary institutions included in the plan would be administered through a state agency."

MEDICAL SCHOOLS VISITED DURING THE CALENDAR YEAR 1944

The following medical schools were visited by the Secretary for formal inspection, advice and consultation or other purposes during the calendar year 1944.

University of Arkansas School of Medicine (twice).
University of California Medical School.
College of Medical Evangelists.
University of Southern California School of Medicine.
Stanford University School of Medicine.
University of Colorado School of Medicine.
Boston University School of Medicine.
Tufts College Medical School.
Wayne University College of Medicine.
Washington University School of Medicine.
Western Reserve University School of Medicine.
Medical College of the State of South Carolina.
Meharry Medical College.
Vanderbilt University School of Medicine.
University of Utah School of Medicine (twice).
University of Vermont College of Medicine.

FORMAL ACTIONS ON MEDICAL SCHOOLS DURING THE CALENDAR YEAR 1944

During the calendar year 1944, following a detailed inspection by the Secretary, the Council took action on the status of three medical schools. The Southwestern Medical College of the Southwestern Medical Foundation, Dallas, Texas, was approved. The University of Utah School of Medicine, which had formerly operated a school of the basic sciences, has had the full four year medical curriculum in operation for about two years. This school was approved as a four year medical school on June 11, 1944. The first class graduated in September 1944. The University of Arkansas School of Medicine, which had been on probation, was removed from this status and restored to full accreditation.

NEW MEDICAL SCHOOLS

The University of Alabama has virtually completed arrangements whereby a third year class will commence its work in the autumn of 1945. This school, formerly an approved institution of the basic medical sciences, employs the facilities of the Hillman and Jefferson hospitals in Birmingham for clinical instruction. The project appears to be under competent leadership and seems to have arranged for adequate clinical facilities.

The University of Missouri now conducts an approved school of the basic medical sciences at Columbia, Mo. It is proposed that this institution be expanded to a full four year medical school, but there is difference of opinion as to whether the new institution should be located in Columbia, Mo., where the university is located, or in Kansas City, where extensive hospital facilities exist.

The University of North Carolina has participated in a statewide plan for the improvement of medical care, and it has been recommended that the University of North Carolina be expanded to the four year status from its present designation as an approved school of the basic medical sciences. It is suggested that a state hospital be constructed in Chapel Hill, where the entire medical school would be located.

In North Dakota and in South Dakota and Mississippi proposals have also been made for expansion from the two year to the four year status.

This tendency on the part of the schools of basic medical sciences to expand into four year medical schools can be attributed primarily to three factors: first, it is becoming increasingly difficult for those who complete the work of the basic medical sciences to gain acceptances to the junior classes of approved four year institutions; secondly, it is generally recognized that modern instruction in the basic medical sciences is handicapped unless clinical facilities are available. This applies primarily to work in pathology but bears on the work of other departments as well and is particularly the case in the teaching of physical diagnosis, which should be completed by the time a student enters the junior year of the medical school. Third, it is the belief in some instances that provisions for the complete training of a medical student within the bounds of a given state will stimulate graduates to remain in that state to practice medicine and therefore relieve the shortage of physicians in needy areas. This tendency toward the expansion of the two year institutions has been encouraged by the Council on Medical Education and Hospitals in instances in which it is apparent that facilities for such development are available. In other instances it is highly questionable whether adequate facilities and funds are available. In such cases the schools of basic medical sciences would serve best by strengthening the programs they now conduct rather than attempt a poorly conceived expansion to a medical school offering the full four year course of instruction at a mediocre or poor level.

INSPECTION OF HOSPITALS, TECHNICAL SCHOOLS AND SPAS, 1944

In the accompanying table are summarized the inspections of hospitals, technical schools and spas made by the Council during the calendar year 1944.

Inspections of Hospitals, Technical Schools and Spas

Hospitals	
Intern training	26
Residency and fellowships	61
Intern training and residencies	13
Registration	15
Total	115
Individual residencies and fellowships investigated	151
Technical Schools	
Clinical laboratory schools	15
Physical therapy schools	4
Occupational therapy schools	5
Medical record librarian schools	2
Total	26
Spas	1
Total number of days in the field	171

CENSUS OF HOSPITALS

The twenty-fourth annual hospital report of the Council was published in the Hospital Number of THE JOURNAL, March 31, 1945. This survey included 6,611 registered hospitals as compared with 6,655 in 1943. The reduction in the number of hospitals, however, was not accompanied by a corresponding loss in bed capacity; on the contrary, the construction of additional units and the expansion of existing services resulted in a net gain of 80,691 beds, the equivalent of a new 220 bed hospital for each day of the year. The present capacity of the registered hospitals is 1,729,945 beds, including 1,352,278 in governmental hospitals and 377,667 in the nongovernmental institutions. Again the principal gain was in the federal group, which now has 551,135 beds, or 74,462 more than were reported in 1943.

Approved Hospitals, Jan. 1, 1945

Hospital Register	
Hospitals registered, Jan. 1, 1944	6,766
Registered during 1944	114
Closed or transferred to Unclassified File	175
Hospitals registered, Dec. 31, 1944	6,705
Approved Internships	
Hospitals approved, Jan. 1, 1944	770
Approved during year	23
Removed from approved list	16
Hospitals approved, Dec. 31, 1944	777
Approved Residencies and Fellowships	
Hospitals approved, Jan. 1, 1944	738
Approved during year	40
Removed from approved list	2
Hospitals approved, Dec. 31, 1944	776
Schools for Clinical Laboratory Technicians	
Approved schools, Jan. 1, 1944	241
Approved during year	14
Removed from approved list	2
Approved schools, Dec. 31, 1944	253
Schools for Physical Therapy Technicians	
Approved schools, Jan. 1, 1944	27
Approved during year	6
Removed from approved list	2
Approved schools, Dec. 31, 1944	31
Schools of Occupational Therapy	
Approved schools, Jan. 1, 1944	10
Approved during year	7
Removed from approved list	0
Approved schools, Dec. 31, 1944	17
Medical Record Librarian Schools	
Approved schools, Jan. 1, 1944	10
No schools approved or removed	
Approved schools, Dec. 31, 1944	10
X-Ray Schools	
Approved schools on initial list, Nov. 19, 1944	112

The most striking feature of the Council's report is the continued expansion of inpatient hospital care, as evidenced by the unprecedented total of 16,036,848 admissions in 1944, an increase of 662,150 in relation to the previous survey. In this connection it may be noted that the nongovernmental hospitals, which have only 22 per cent of the beds, received 59.2 per cent of the total admissions. The general hospitals had 15,060,403 admissions, or 93.9 per cent of all patients admitted to the registered hospitals last year. The tremendous volume of hospital service is also indicated in the average daily census of 1,299,474, which represents a total of 475,607,484 patient days in the twelve months period under consideration. In addition to the number of patients treated, the registered hospitals gave care to 1,919,976 newborn infants. When compared with the previous report, the number of births show a reduction of 4,615, whereas increases of 265,659 and 253,992 occurred in 1942 and 1943 respectively.

A special study of hospital facilities for children showed that 61,262 beds are regularly available for this purpose exclusive of bassinets for newborn infants. The general hospitals have the greatest number of children's beds, a total of 36,462. Reports were also included regarding internships and residencies, schools of nursing education and nursing and technical personnel. At present 718 civilian hospitals are approved for intern training and 692 for residencies in specialties. These include 337 hospitals which offer acceptable training in both classifications. Accredited schools of nursing education are now conducted in 1,439 hospitals with a total enrolment of 129,879 students including Cadet Nurses. In 1943 the number of student nurses was 110,222.

RECOMMENDED CHANGE IN THE ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL

The Council on Medical Education and Hospitals recommends that the chemistry requirement listed in the Essentials of an Acceptable Medical School, page 4, under VII, "Requirements for Admission" (to a medical school) be changed from the present wording, which reads "general and inorganic chemistry," to read "inorganic and organic chemistry." Practically all medical schools require training in organic chemistry, which is essential for the proper mastery of the medical school material, particularly in the field of biochemistry.

RECOMMENDED CHANGE IN ESSENTIALS OF AN ACCEPTABLE SCHOOL FOR PHYSICAL THERAPY TECHNICIANS

The Council recommends to the House of Delegates that the Essentials of an Acceptable School for Physical Therapy Technicians be changed by the addition of the sentence "Technicians are trained in these schools to work under the direction of qualified physicians and not as independent practitioners of physical therapy." This statement should be added after item 1 under section I. "Organization." A statement similar to this now appears in the essentials for schools for clinical laboratory technicians, x-ray technicians and occupational therapists.

RECOMMENDED REVISION OF THE ESSENTIALS OF AN ACCEPTABLE SCHOOL FOR MEDICAL RECORD LIBRARIANS

The Council recommends to the House of Delegates that the Essentials of an Acceptable School for Medical Record Librarians be changed substituting the following for the material now included under "V. Curriculum":

V. CURRICULUM

1. The course of training should include not less than fifty weeks of theoretical instruction and practical hospital experience.

2. Theoretical instruction may be presented by informal conferences or formal lectures and should include the following:

	Recommended Time (Clock Hours)
Anatomy and physiology	100
Fundamentals of medical science Bacteriology, doctors' lectures in all medical specialties	30
Medical terminology Etymology Abbreviations Drug terms Nomenclatures—disease, operative, symptomatology	30
Medical record library science History Medicolegal Ethics Securing and preserving Statistics Indexes	100
Management Hospital organization Interdepartmental relations Purchase of supplies, etc. Supervision, function and technics	10
Psychology (recommended if not specified for admission)	(25)
Total clock hours	270

3. Practical training should involve all activities associated with the care of medical records. This should include:

Orientation
Filing
Outpatient department and social service
Admission and discharge routine, including hospital statistics
Adjunct department records
Secretarial practice
Medicolegal relationships
Indexes, including comparative and group studies
Admitting office
Patient census
Medical library
Department management

Sufficient time should be devoted to each assignment so that students may become familiar with all functions of the medical record library and the various departments of the hospital. Additional experience in the handling of records in the pathology and radiology departments is recommended. To augment the training program, field trips should be arranged when possible to visit other hospitals and study their record library equipment and methods.

These changes are in accordance with policies and curriculums now in operation in the approved schools for medical record librarians. They were developed in collaboration with representatives of the American Association of Medical Record Librarians and have the approval of that organization.

NURSING

In June 1944 the House of Delegates passed the following resolution:

WHEREAS, There is a very obvious deficiency in trained personnel for nursing; and

WHEREAS, The demands for adequate nursing are apt to be greater; be it

Resolved, That the Council on Medical Education and Hospitals communicate with the various national organizations concerned with nursing for the purpose of discussing the present nursing situation in order that proper nursing bodies may consider the matter with a view toward its amelioration.

Pursuant to this direction by the House of Delegates, the Council has appointed Dr. F. H. Arestad as a representative on the National Nursing Council for War Service. In addition, the Secretary is a member of the Special Committee on Accrediting of the National League of Nursing Education. Also Dr. Herman G. Weiskotten is a member of the National Organization of Public Health Nursing and Dr. Charles Gordon Heyd has been representing the Council on the National Association of Practical Nurse Education. Nursing problems of wartime have been under frequent consideration by these bodies, with which the Council keeps in close touch. The Council has collaborated with the National Nursing Council for War Service in the collection of extensive data concerning nursing personnel in various categories in the registered hospitals of the country. This material was published in the 1945 Hospital Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (March 31, 1945).

BOARD OF GENERAL PRACTICE

The resolution presented to the House of Delegates in June 1944 calling for the establishment of a board of general practice reads as follows:

Resolved, That there shall be and is hereby constituted a Board of General Practice of the general practice sessions of the Association, which shall consist of seven members of the American Medical Association, all of whom shall be qualified and recognized general practitioners; that said Board of General Practice shall be duly organized as a corporate body; and be it further

Resolved, That said Board of General Practice shall be and is vested with all powers necessary for the regulation, control, supervision and gradation of the general practice sessions.

The House of Delegates referred this resolution to the Council on Medical Education and Hospitals for transmission to the Advisory Board for Medical Specialties. On transmissal of this resolution to the Advisory Board for Medical Specialties it was stated that consideration of this resolution by the Advisory Board would depend on the formulation of more concrete objectives to be presented in writing to the Advisory Board for Medical Specialties by an organized group representing the proposed board. As yet such objectives have not been presented to the Advisory Board for Medical Specialties or its Committee on Standards and Examinations.

TEACHING OF PHARMACOLOGY

At the June 1944 meeting of the House of Delegates the Reference Committee on Reports of Officers stated that it "desires to endorse his [President-Elect Kretschmer's] suggestion that the Council on Medical Education and Hospitals give further consideration to improvements in the teaching of pharmacology in medical schools, particularly as this applies to prescription writing and drug therapy." In accordance with these directions, discussions have been held with Dr. Austin E. Smith, Secretary of the Council on Pharmacy and Chemistry, who has completed an extensive study of the requirements for adequate instruction in pharmacology, including prescription writing and drug therapy. The results of this study by Dr. Smith are being presented for publication in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. To assist in carrying out its instructions, the Council will distribute reprints of this paper to the medical schools.

INSTRUCTION IN MEDICAL SOCIOLOGY, MEDICAL ECONOMICS AND MEDICAL ETHICS

The Council on Medical Education and Hospitals was requested by the Council on Medical Service and Public Relations and directed by the House of Delegates at the June 1944 meeting, as a result of the report of the Reference Committee on Legislation and Public Relations, to stimulate the development in medical schools of courses in medical sociology, medical economics and medical ethics. Pursuant to these directions a study was made of the extent to which such work is now offered in approved medical schools. Of the seventy-seven approved medical schools and schools of the basic medical sciences in the United States, forty-two now offer some work in this field. It is apparent that there is considerable lack of uniformity and great differences in the amount of time devoted to these subjects in these schools. In some instances material in this field is offered in conjunction with other courses. It is suggested that the Council on Medical Service and Public Relations give thought to the preparation of an outline for a course in this field giving the subject matter which ought to be covered and possible source materials for instructors as well as students in such a course. In a number of instances a lack of information and of organized sources of material have militated against the presentation of adequate work in this field.

COUNCIL PUBLICATIONS

Major publications during 1944 and thus far in the present year include:

Hospital Service in the United States.
State Board Number of THE JOURNAL.
Medical Education in the United States and Canada.

Compilation of Special Reprint Edition of Papers prepared for the 1945 Annual Congress on Medical Education and Licensure.
Choice of a Medical School.
Postwar Graduate Medical Education.
Approved Colleges of Arts and Sciences.
Schools for Clinical Laboratory Technicians.
Schools for Physical Therapy Technicians.
Schools of Occupational Therapy.
Schools for Medical Record Librarians.
Schools for X-Ray Technicians.

COLLABORATION WITH OTHER AGENCIES

The Council continues to collaborate closely with several agencies, including (1) the Association of American Medical Colleges in all matters pertaining to medical schools, (2) the various American specialty boards in matters relating to the approval of residencies, (3) the Advisory Board for Medical Specialties, with which the Council held a joint meeting in February 1945, (4) the American Council on Education in problems associated with legislation providing postwar education for veterans and plans for college accreditation of academic work done by soldiers and sailors in various military educational programs, (5) the American College of Surgeons, (6) the American Hospital Association, (7) the Committee on Postwar Medical Service, (8) the Federation of State Medical Boards of the United States, (9) the Armed Forces Institute, (10) the Institute of International Education, (11) the Office of the Coordinator of Inter-American Affairs, (12) the State Department, (13) the Pan American Sanitary Bureau, (14) the American Dental Association, (15) the National Nursing Council for War Service, (16) the National League of Nursing Education, (17) the National Organization of Public Health Nursing, (18) the National Association of Practical Nurse Education and (19) the Joint Orthopedic Nursing Advisory Service.

Government agencies with which there have been frequent conferences and close cooperation have included the offices of the Surgeons General of the Army and Navy and Public Health Service, the Army Specialized Training and Navy V-12 officials, the Procurement and Assignment Service, the Social Security Board, the War Production Board and the Office of Vocational Rehabilitation.

APPRECIATION

In the course of its work involving contacts with government and military officials as well as officers and officials of medical schools, hospitals, licensing boards and technical schools the Council has met with the utmost in cooperation at every hand. It is particularly gratifying to note the willingness with which all concerned cooperate with members of the Council and its staff in efforts to maintain adequate educational standards in these difficult times. The readiness in supplying data for the special numbers of THE JOURNAL is deeply appreciated. Such information finds wide usage by government bodies, hospitals, medical schools, medical students and physicians. The Council especially desires to express its appreciation to the general officers, the trustees and the members of the House of Delegates of the American Medical Association for the wholehearted manner in which they have cooperated with the Council and assisted it in every activity of the past year.

Respectfully submitted,

RAY LYMAN WILBUR, Chairman.
H. G. WEISKOTTEN.
J. H. MUSSER.
HARVEY B. STONE.
REGINALD FITZ.
RUSSELL L. HADEN.
CHARLES GORDON HEYD.
VICTOR JOHNSON, Secretary.

Committee on American Health Resorts

The Committee on American Health Resorts respectfully submits the following report for the year 1944:

The Committee on American Health Resorts functioned in 1944 under considerable difficulties. Of the normal membership of five, one place was vacant and Lieut. Col. Euclid M. Smith was occupied with military duties.

The principal accomplishment of the Committee during 1944 was the publication of papers on physical therapy and spas under the following titles:

"Nature of Natural Facilities Used at Health Resorts," by W. S. McClellan and Charles I. Singer.
"The Types of Treatments Administered at Health Resorts," by M. B. Jarman.
"The Economic Aspects of Health Resort Therapy," by A. M. Simons.
"Underwater Therapy at Spas," by Euclid Smith and Billie Crook.
"The Place of Health Resort Therapy in the Treatment of Conditions Affecting the Nervous System," by George B. Fletcher.
"The Place of Health Resort Therapy in Rehabilitation Following Traumatic and Other Injuries," by Frank Krusen.
"Thalassotherapy," by Charles I. Singer and Kenneth Phillips.

The first seven articles prepared under the auspices of the Committee were published in 1943.

There was no meeting of the Committee on American Health Resorts in 1944, but a meeting was held early in 1945.

(To be continued)

Medical Legislation

MEDICAL BILLS IN CONGRESS

Scientific Research

Joint hearings have been scheduled by the Senate Committees on Commerce and Military Affairs on three bills relating to the formulation of a federal program for scientific research, S. 1297, S. 1248 and S. 1285. The hearings will begin on October 8 and will extend, it is anticipated, for a period of from three to four weeks. It is understood that the following witnesses have been invited to testify: Dr. Isaiah Bowman, president of Johns Hopkins, Dr. James B. Conant, president of Harvard, Secretary of War Patterson, Secretary of the Navy Forrestal, Secretary of Commerce Wallace, Secretary of the Interior Ickes, Dr. Vannevar Bush, Director of the Office of Scientific Research and Development, Harold Smith, Director of the Budget, Eric Johnston, president of the United States Chamber of Commerce, Ira Mosher, president of the National Association of Manufacturers, Phillip Murray, president of C. I. O., and William Green, president of A. F. of L.

Army Medical Corps

Senator Langer, North Dakota, has introduced S. J. Res. 97, to provide for replacement of medical personnel commissioned from civilian life with persons trained under the Army specialized training program. This bill proposes that, in order to accelerate the return to civilian life of physicians, dentists and veterinarians who have served in the Army during the war, the services of personnel trained under the Army specialized training program should be utilized to the greatest extent practicable to replace such physicians, dentists and veterinarians.

A bill introduced by Representative Traynor, Delaware, H. R. 4147, proposes to establish a Chiropody Corps in the Medical Corps of the Army and to provide for a Chiropody Reserve Corps. It is pending before the House Committee on Military Affairs.

Navy Nurse Training School

A bill introduced by Representative Price, Florida, proposes to establish a United States Navy Training School for Nurses. The trainees will be selected on the same terms and conditions as midshipmen are selected and admitted to the United States Naval Academy. On graduation, trainees will be commissioned as ensigns in the Navy Nurse Corps and may be assigned to duty with the Navy or to duty in hospitals under the jurisdiction of the Veterans Administration.

Miscellaneous

A bill introduced by Representative Larcade, Louisiana, H. R. 4132, provides for the discharge or release from active duty of those members of the armed forces desiring to resume their education or training.

A reorganization of the agencies of the government is contemplated by a bill introduced by Representative Manasco, Alabama, H. R. 4129. This bill has been favorably reported by the House Committee on Expenditures in the Executive Departments.

The Vannevar Bush Report

This analysis was presented to the Committee on Postwar Medical Service on September 23 by a subcommittee of the Committee on Postwar Medical Service appointed by that body to study the Bush report and make recommendations to the entire committee.

1. The Vannevar Bush Report

The Bush report was made in response to a request by President Roosevelt for advice concerning the desirability of federal financial support of research. The report was made by Dr. Bush in collaboration with a number of leaders in science who were organized into four separate committees: (1) Medical Advisory Committee, Dr. W. W. Palmer chairman, (2) Committee on Science and the Public Welfare, Dr. Isaiah Bowman chairman, (3) Committee on Discovery and Development of Scientific Talent, Dr. Henry Allan Moe chairman, and (4) Committee on Publication of Scientific Information, Dr. Irvin Stewart chairman. Dr. Bush said "Although the report which I submit herewith is my own, the facts, conclusions and recommendations are based on the findings of the committees."

The report can be considered under two main headings: (1) a development of the main reasons for federal support of research and (2) a specific plan of implementation in the organization of a National Research Foundation as a separate agency of the executive branch of the federal government.

2. Reason Advanced in the Report for Federal Support of Research

The most compelling argument cited in the report for a continuation of federal support of research is the success with which the wartime research of the Office of Scientific Research and Development was conducted in the medical and physical sciences for purposes of national defense. These achievements are claimed to warrant federal support for the extension of research.

The report maintains that, in the main, such work can best be done in our universities, colleges and research institutes under their own organization and administration. Federal support can in many important ways enable these institutions to intensify their research programs with the expectation of even greater success than at present, particularly in view of the mounting costs of research and the limited funds for such purposes in many of these institutions.

Another argument for federal support advanced in the report is the necessity of insuring a continuous availability of research workers now and in the future. This aim can be furthered through the provision of scholarships and fellowships for men and women of promise at the undergraduate and graduate levels.

Your subcommittee accepts the force of these arguments and agrees with the conclusions, subject to appropriate safeguards. The subcommittee on the Vannevar Bush report to the President favors federal support of research: it is of the opinion that the support of scientific research by the federal government presents a challenging and compelling opportunity for government to foster the public welfare by assisting in the support of scientific research. To be most effective, this support should leave the policy, personnel and method and scope of research to the colleges, universities and research institutions themselves. Institutional and personal liberty in research should be fully safeguarded. The responsibility for such safeguards should be entrusted to men of scientific achievement, knowledge and leadership.

3. Implementation: Recommendation of the Report for Legislation

The Bush report recommends that a separate agency be established, to be known as the National Research Foundation; it should consist of nine "members" selected by the President, who should be persons "not otherwise connected with the government and not representative of any special interest." The report strongly urges that the members be given complete freedom in the organization and operation of the foundation. The members would elect their own chairman annually. They also would appoint a director as chief executive officer of the foundation and the chairman and five members of each of the five following proposed divisions, after requesting and considering "recommendations from the National Academy of Sciences which should be asked to establish a new National Research Foundation nominating committee in order to bring together the recommendations of scientists in all organizations."

The five divisions are (1) Division of Medical Research, (2) Division of Natural Sciences, (3) Division of National Defense (which also includes Army and Navy representation), (4) Division of Scientific Personnel and Education and (5) Division of Publications and Scientific Collaboration.

The foundation would make grants to educational and research institutions for support of scientific research on recommendation of the divisions. It is proposed that these funds be made available not only to institutions of "a demonstrated research capacity" but also to those where "latent talent or creative atmosphere affords promise of research success."

Dr. Bush gives the following "Five Fundamentals" which must underlie such a government program:

1. Whatever the extent of support may be, there must be stability of funds over a period of years, so that long range programs may be undertaken.

2. The agency to administer such funds should be composed of citizens selected only on the basis of their interest in and capacity to promote the work of the agency. They should be persons of broad interest in and understanding of the peculiarities of scientfic research and education.

3. The agency should promote research through contracts or grants to organizations outside the federal government. It should not operate any laboratories of its own.

4. Support of basic research in the public and private colleges, universities and research institutes must leave the internal control of policy, personnel and the method and scope of the research to the institutions themselves. This is of the utmost importance.

5. While assuring complete independence and freedom for the nature, scope and methodology of research carried on in the institutions receiving public funds, and while retaining discretion in the allocation of funds among such institutions, the foundation proposed herein must be responsible to the President and the Congress. Only through such responsibility can we maintain the proper relationship between science and other aspects of a democratic system. The usual controls of audits, reports, budgeting and the like should, of course, apply to the administrative and fiscal operations of the foundation, subject however to such adjustments in procedure as are necessary to meet the special requirements of research.

Basic research is a long term process—it ceases to be basic if immediate results are expected on short term support. Methods should therefore be found which will permit the agency to make commitments of funds from current appropriations for programs of five years' duration or longer. Continuity and stability of the program and its support may be expected (*a*) from the growing realization by the Congress of the benefits to the public from scientific research and (*b*) from the conviction which will grow among those who conduct research under the auspices of the agency that good quality work will be followed by continuing support.

Research now being conducted in existing government agencies is to remain under their auspices, with the foundation serving in a consultative, advisory and correlating capacity.

The scholarship program involves 6,000 four year undergraduate scholarships to promising high school graduates (24,000 at any one time, after the program is in full operation) and 300 three year graduate scholarships (900 at any one time, after a while) at an annual cost of $30,000,000. It also makes provision for fellowships for advanced training in fundamental research. Recipients of these scholarships and fellowships are to be enrolled in a National Science Service, subject to call by the government "in time of war or other national emergency declared by Congress or proclaimed by the President."

Regarding patents, the report states:

The public interest will normally be adequately protected if the government receives a royalty-free license for governmental purposes under any patents resulting from work financed by the foundation. There should be no obligation on the research institution to patent discoveries made as a result of support from the foundation. There should certainly not be any absolute requirement that all rights in such discoveries be assigned to the government, but it should be left to the discretion of the director and the interested division whether in special cases the public interest requires such an assignment. Legislation on this point should leave to the members of the foundation discretion as to its patent policy in order that patent arrangements may be adjusted as circumstances and the public interest require.

The proposed budget of the foundation is $33.5 million in the first year, to reach $122.5 million in five years, allocated as follows:

Activity	Millions of Dollars	
	First Year	Fifth Year
Division of Medical Research	5.0	20.0
Division of Natural Sciences	10.0	50.0
Division of National Defense	10.0	20.0
Division of Scientific Personnel and Education	7.0	29.0
Division of Publications and Scientific Collaboration	0.5	1.0
Administration	1.0	2.5
	33.5	122.5

4. Suggestions of the Subcommittee

Your subcommittee approves in general the recommendations of the Bush report with respect to implementation subject to the following suggestions:

(*a*) In the opinion of the subcommittee it would be appropriate if the National Academy of Sciences could advise with respect to the selection of the members of the foundation in the manner recommended in the report for the appointment of members constituting the divisions.

(*b*) The interests of the five divisions should be adequately represented in the membership of the foundation.

(*c*) While the divisions should be administratively independent, provision should be made for free interchange of information and discussion.

(*d*) The five fundamental principles stated in the report would appear to be essential for the effective functioning of the foundation.

(*e*) The subcommittee questions the advisability or necessity of organizing the "National Science Service" to secure the services to the government in time of emergency of the recipients of the foundation's scholarships or fellowships.

(*f*) The proportion of funds suggested as an allotment to medical research would seem to be a fair initial estimate but should be considered subject to modification in the light of experience.

(*g*) Even though there should be federal support of research, it is necessary to preserve the support of research by private foundations and other donors; tremendous advances in science have been made in the past from such support, and it should continue undiminished in the future.

(*h*) The subcommittee considers the problem of the federal support of the social sciences to be outside the scope of its deliberations.

(*i*) The subcommittee wishes to reiterate the necessity for complete freedom of the foundation members to allot funds and for the participating institutions to exercise complete freedom in carrying out the research for which they receive support.

(*j*) In the opinion of the subcommittee, the Magnuson bill (S. 1285) more nearly meets the provision of the Bush report in safeguarding institutional and individual liberty in research than do other pending bills.

5. Conclusion

The subcommittee recommends (1) that the Bush report, subject to the qualifications set forth, receive the strong support of the Committee on Postwar Medical Service, (2) that the various agencies represented in the Committee on Postwar Medical Service give consideration to the contents of the subcommittee's report in their public pronouncements and in congressional hearings in which they might be invited to participate and (3) that consideration of proposals and legislation for new federal programs to assist in medical research within restricted areas or specialties of medicine should be delayed until the establishment of some such comprehensive program as that proposed in the Bush report covering all the fields of medicine and natural sciences.

Submitted by Francis G. Blake, Chairman, Frederick A. Coller, Victor Johnson, W. W. Palmer and Alphonse M. Schwitalla.

Committee on Scientific Exhibit

MOTION PICTURES FOR CADET NURSES

The U. S. Office of Education, with the cooperation of the Nurse Education Division of the U. S. Public Health Service, has completed thirteen motion pictures to aid in the training of cadet nurses. The films are all 16 mm., sound. They are accompanied by filmstrips for review, discussion and study, together with an instructor's manual.

The films may be purchased from visual education dealers or from Castle Films, 30 Rockefeller Plaza, New York 20.

OE 403. *Bathing the Patient (Home Care).* 24 minutes.
OE 404. *Feeding the Patient.* 15 minutes.
OE 406. *The Vital Signs and Their Interrelation—Body Temperature, Pulse, Respiration, Blood Pressure.* 32 minutes.
OE 408. *Therapeutic Uses of Heat and Cold: Part I. Administering Hot Applications.* 21 minutes.
OE 409. *Therapeutic Uses of Heat and Cold: Part II. Administering Cold Applications.* 22 minutes.
OE 410. *Hydrotherapy.* 22 minutes.
OE 411. *Radiotherapy.* 17 minutes.
OE 412. *Care of the Newborn Baby.* 31 minutes.
OE 414. *Fundamentals of Massage.* 12 minutes.
OE 417. *Care of the Patient with Diabetes Mellitus (Uncomplicated).* 29 minutes.
OE 418. *Care of the Patient with Diabetes Mellitus (Complicated).* 29 minutes.
OE 419. *Care of the Cardiac Patient.* 33 minutes.
OE 422. *Teaching Crutch Walking* 13 minutes.

BRITISH MEDICAL MOTION PICTURES

The British Information Services has made available in the United States several motion pictures. They are all 16 mm., sound. Copies may be rented or purchased from the various offices of the British Information Services or from the British Consular Offices. Information may be obtained from the Film Officer, British Information Services, 360 North Michigan Avenue, Chicago 1.

The following films deal with rehabilitation:

Psychiatry in Action. 7 reels, 62 minutes.
Deals with war neuroses, showing special treatments, including physical rehabilitation and occupational therapy.

Back to Normal. 2 reels, 16 minutes.
Deals with the fitting and use of artificial limbs.

Accident Service. 4 reels, 40 minutes.
Shows the general principles of industrial rehabilitation.

Hospital Schools. 1 reel, 11 minutes.
Depicts rehabilitation of children, combined with elementary and high school education.

Life Begins Again. 2 reels, 21 minutes.
Shows the rehabilitation of men injured in industry as well as in war.

Plastic Surgery in Wartime. 3 reels, 27 minutes.
Gives a generalized, nontechnical view of what can be expected of plastic surgery.

Other motion pictures include medical subjects of interest to both the physician and the layman. Following are some of the subjects:

Surgery in Chest Diseases. 4 reels, 43 minutes.
A specialized film for the physician, illustrating the treatment of chest diseases.

Scabies. 4 reels, 37 minutes.
Shows the cause and treatment of "the itch."

Blood Transfusion. 4 reels, 39 minutes.
Survey of blood transfusion, its development in international medical history and its wartime technics.

Out of the Night. 1 reel, 11 minutes.
Describes the education of the blind in England.

Men in Danger. 2 reels, 19 minutes.
A prewar film dealing with industrial accidents and some of the major occupational diseases.

Rat Destruction. 1 reel, 10 minutes.
Shows how to deal with the menace of urban rats.

No Accidents. 1 reel, 10 minutes.
Emphasizes the importance of routine observance of safety precautions in factories.

Bureau of Information

SUMMARY SHEETS FROM GEORGIA AND MAINE

Completed county summary sheets have been received from counties in Georgia through Dr. E. D. Shanks, secretary, Medical Association of Georgia, and from Maine through Dr. Frederick H. Carter, secretary, Maine Medical Association.

The accompanying tables give data from selected counties in these states. The column giving the number of persons per telephone is used as one index of the economic status of the area.

Georgia

County [1]	Principal Cities [2]	Population	Physicians Under 65	Persons per Physician	Persons per Telephone [3]
Appling		12,706	4	3,176	59
	Boxley	2,916			
Atkinson		6,253	3	2,084	189
Chatham		150,111	54	2,780	15
	Savannah	95,996			
Coffee		19,589	7	2,798	71
	Douglas	5,175			
Floyd		53,187	26	2,046	20
	Rome	26,282			
Jones		6,943	1	6,943	54
Mitchell		20,108	6	3,351	54
	Camilla	2,588			
	Pelham	2,579			
Quitman		2,959	1	2,959	..
Rabun		6,499	2	3,249	87
Walton		18,842	3	6,281	48
	Monroe	4,168			

Maine

County [1]	Principal Cities [2]	Population	Physicians Under 65	Persons per Physician	Persons per Telephone [3]
Cumberland		152,877	74	2,066	7
	Portland	73,643			
	South Portland	15,781			
	West Brook	11,087			
Franklin		16,469	6	2,745	8
	Farmington	3,743			
	Wilton	3,228			
	Jay	2,858			
Hancock		27,095	14	1,935	8
	Bar Harbor	4,378			
	Ellsworth	3,911			
	Bucksport	2,927			
Kennebec		68,193	39	1,749	7
	Augusta	19,360			
	Waterville	16,688			
	Gardiner	6,044			
Knox		22,875	11	2,080	7
	Rockland	8,899			
	Camden	3,554			
	Thomaston	2,533			
Oxford		35,809	19	1,885	8
	Rumford	10,230			
	Mexico	4,431			
	Paris	4,094			
Penobscot		86,442	46	1,879	8
	Bangor	29,822			
	Old Town	7,688			
	Brewer	6,510			
Piscataquis		17,147	6	2,858	11
	Dover-Foxcroft	4,015			
	Milo	3,000			
Waldo		16,026	4	4,006	7
	Belfast	5,540			
Washington		29,833	11	2,712	11
	Calais	5,161			
	Eastport	3,346			
	Lubec	3,108			

1. Bureau of Census, estimated population 1943.
2. Bureau of Census, population 1940.
3. Based on 1940 figures, American Telephone and Telegraph Company.

Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

Committee on American Health Resorts

BAKER HOTEL, MINERAL WELLS, TEXAS, ACCEPTABLE FOR LISTING

The Committee on American Health Resorts has authorized publication of the following statement on the acceptance of the Baker Hotel, Mineral Wells, Texas. A copy of the rules on which the Committee bases its action will be sent on request.

W. W. Bauer, M.D.

The Baker Hotel, Mineral Wells, Texas, applied for listing by the Committee on American Health Resorts of the American Medical Association. The Committee has been furnished with all the information required under its rules, including copies of advertising and promotional material, and a report on an inspection by a Committee representative. The submitted information and the report indicate that the institution is operated in accordance with the rules of the Committee. Minor adjustments in policies of the hotel necessary to insure compliance with the rules have been made.

The Committee on American Health Resorts is satisfied that Baker Hotel is being operated in accordance with the rules of the Committee and has placed this institution on the list of American Health Resorts complying with the Committee rules, for a period of one year beginning Sept. 1, 1945. This listing may be continued for three year periods if the listed institution continues to comply with the rules.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Ophthalmological Society, Hot Springs, Va., Nov. 12-14. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Society of Tropical Medicine, Cincinnati, Nov. 12-15. Dr. Joseph S. D'Antoni, Tulane Ave., New Orleans 13, Secretary.

Association of American Medical Colleges, Pittsburgh, Oct. 29-31. Dr. Fred C. Zapffe, 5 S. Wabash Ave., Chicago, Secretary.

Delaware, Medical Society of, Wilmington, Oct. 8-10. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A. Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

Kentucky State Medical Association, Lexington, Oct. 29-31. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

New York, Medical Society of the State of, House of Delegates, Buffalo, Oct. 8-9. Dr. W. P. Anderton, 292 Madison Ave., New York 17, Secretary.

Omaha Mid-West Clinical Society, Omaha, Nebraska, Oct. 22-26. Dr. R. W. Fouts, 107 S. Seventeenth St., Omaha, Secretary.

Pennsylvania, Medical Society of the State of, House of Delegates, Philadelphia, Oct. 23-24. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Southern Medical Association, Cincinnati, Nov. 12-15. Mr. C. P. Loranz, Empire Bldg., Birmingham 3, Alabama, Secretary.

Tennessee State Medical Association House of Delegates, Nashville, Oct. 20-21. Dr. W. M. Hardy, 706 Church St., Nashville, Secretary.

Virginia, Medical Society of, House of Delegates, Roanoke, Oct. 22-23. Miss Agnes V. Edwards, 1200 Clay St., Richmond 19, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Dr. Peers Resigns as Mayor of Colfax.—Dr. Robert A. Peers, a member of the Board of Trustees of the American Medical Association and formerly president of the California Medical Association, on July 10 resigned from the city council and as mayor of Colfax. Dr. Peers first was elected to the city council in 1921 and was chosen mayor of the city the following year.

Heart Association Meetings.—The annual postgraduate symposiums on heart disease held under the auspices of the California Heart Association will be given as follows:

San Francisco, October 17-20. Physicians may register with the San Francisco Heart Committee, 604 Mission Street, San Francisco 5.
San Diego, October 22. Symposium sponsored by the San Diego County Medical Society.
Los Angeles, October 24-26. Physicians may register with the Los Angeles Heart Association, 117 West 9th Street, Los Angeles 15.

Included among the guest speakers will be Dr. Samuel A. Levine, Boston; Col. Irving S. Wright, M. C., and Dr. James J. Waring, Denver.

Grant for Epilepsy Research.—Research now in progress on the control or prevention of epilepsy will be aided by a grant from C. S. Morse, San Francisco, according to an announcement from Robert G. Sproul, LL.D., president of the University of California, Berkeley, in the University of California *Clip Sheet*, September 18. Within the next three years $9,000 will be given to supplement the Mother Lode Fund, which was established to finance epilepsy in the department of neurology under Dr. William J. Kerr, professor of medicine in the medical school on the San Francisco campus of the university (THE JOURNAL, March 17, p. 663).

DELAWARE

State Medical Meeting in Wilmington.—The one hundred and fifty-sixth annual session of the Medical Society of Delaware will be held at the Academy of Medicine, Wilmington, October 8-10, under the presidency of Dr. I. Lewis Chipman. Among the speakers will be:

Dr. William H. Speer, Wilmington, Excerpts from Activities of Other State Societies.
Dr. Frederick H. Allen, Philadelphia, Mental Hygiene in Children.
Dr. Temple S. Fay, Philadelphia, Problems of Rehabilitation in Patients with Cerebral Palsy.
Dr. Karl M. Houser, Philadelphia, Early Malignancy of the Larynx: Its Detection and Treatment.
Lieut. Arthur G. Lueck (MC), Use and Efficacy of Sulfonamides and Penicillin.
Comdr. Fred A. Butler (MC), Pacific Tropical Diseases: Their Management and Postwar Implication.
Dr. Joseph C. Birdsall, Philadelphia, Pyelitis—Early Symptoms, Diagnosis and Treatment.
Dr. William Bates, Philadelphia, Early Determination of Gallbladder Disease and Treatment.
Dr. Paul C. Barton, Washington, D. C., Procurement and Assignment.
Lieut. Col. Alexander J. Schaffer, M.C., Prominent Medical Conditions and Their Treatment Encountered in the Pacific Area.
Lieut. Col. George O. Eaton, M. C., Initial Treatment and Methods of Transportation in Fractures of the Long Bones.
Capt. Lewis K. Ferguson (MC), Treatment of Chest and Abdominal Wounds.
Dr. John Q. Griffith Jr., Philadelphia, Hypertension—Some of the Results with Later Methods of Treatment.

DISTRICT OF COLUMBIA

Personal.—Major General George C. Dunham, president of the Institute of Inter-American Affairs, was recently awarded the distinguished service medal for his work in advancing the development of Latin America. The citation accompanying the medal read in part that, "through his exceptional performance in discharging duties of great responsibility, large populations in the other Americas have benefited from expanded health and sanitation facilities, standards of living have been raised, and important forward steps have been taken in cooperative effort toward the economic development of the hemisphere." General Dunham has been with the Office of Inter-American Affairs since 1942, directing since that time the most extensive long range Inter-American health and sanitation program ever attempted, according to the *Newsletter* of the Health and Sanitation Division of the Institute of Inter-American Affairs.

FLORIDA

Special Society Election.—Dr. John A. Pines, Orlando, was elected president of the Florida Radiological Society at Orlando recently. Other officers include Drs. Charles M. Gray, Orlando, vice president, and James F. Pitman, Lake City, secretary-treasurer.

ILLINOIS

Special Society Election.—Dr. John J. Madden was chosen president of the Illinois Psychiatric Society at its annual meeting recently. Other officers include Drs. Frances Hannett, vice president, and Charlotte G. Babcock, secretary-treasurer, all of Chicago.

Chicago

Personal.—J. Milo Anderson, assistant superintendent of the University of Chicago Clinics and superintendent of the Chicago Lying-In Hospital and Dispensary, was to take over a new appointment as administrator of the Methodist Hospital, Gary, Ind., August 15.

Gift for Cancer.—Northwestern University has received $10,000 to establish a fund for "research into the cause and cure of cancer and the amelioration of suffering from that disease." The gift was made by Miss Edith L. Patterson as a memorial to her brother, Floyd Elroy Patterson, to augment a contribution of $575,000 made to Northwestern University in 1933 for the maintenance of the Patterson Cancer Clinic on the Chicago campus and to serve as a nucleus to establish the new fund.

INDIANA

Personal.—Dr. George W. Boner, North Vernon, has been appointed superintendent of the Madison State Hospital, North Madison, to succeed Dr. Love E. Pennington, resigned.—Dr. Robert M. Maurer, Brazil, has been named health commissioner of Clay County to succeed Dr. Lewis C. Rentschler, Clay City, who resigned because of ill health.

Phi Delta Epsilon Lecture.—Lieut. Col. Truman G. Blocker Jr., M. C., chief of plastic service, Wakeman General Hospital, Camp Atterbury, on July 20 gave the Phi Delta Epsilon Lecture sponsored by the fraternity at the Indiana University Medical Center, Indianapolis. His subject was "Plastic Surgery of War Wounds." A feature of the meeting at which the lecture was given was the presentation to Donald P. Morgan, Indianapolis, junior student in the medical school, of the John F. Barnhill Award for excellence in freshman anatomy.

KANSAS

Changes in Health Officers.—Dr. Harold O. Bullock, Independence, has been made health officer of Montgomery County on a temporary part time basis, succeeding Dr. Blair Points, who resigned July 26. Dr. Fred E. Torrance, Winfield; was named on a similar basis in Cowley County, succeeding the late Dr. Forrest A. Kelley.

First Postgraduate Course.—The University of Kansas School of Medicine, Kansas City, will conduct its first postgraduate course October 29-November 2. The course is designed as a review especially to assist men who have been in service, but a general invitation is extended to all physicians in the state. Applications may be sent either to Dr. Harry R. Wahl, dean of the school of medicine, Kansas City, or to Mr. Harold G. Ingham, director of the extension division, Lawrence. Dr. Edward H. Hashinger, Kansas City, Mo., has been appointed acting director for the graduate medical program. Among the instructors participating in the course will be Drs. Joseph A. Capps, Chicago, on "Pleural Shock"; Herbert A. Wenner, New Haven, Conn., "Poliomyelitis," and Albert D. Ruedemann, Cleveland, "Differential Diagnosis of the Red Eye."

Expanded Mental Facilities.—Plans are now being completed to provide the University of Kansas Hospitals, Kansas City, with enlarged facilities for the treatment of mental patients and for the instruction of medical school students in the specialized line. A former convalescent ward was converted into a psychiatric ward, equipped to serve about 25 patients at a time. It was hoped that the new unit would be completed October 1. According to the *Journal of the Kansas Medical Society*, the addition of the ward was made possible by a $10,000 appropriation for remodeling and equipment granted by the last Kansas legislature. Another bill gave the probate court authority to send a person to the school of medicine for diagnosis and recommendation as to whether or not he should be committed to a state institution. The new facilities will be used primarily as a diagnostic center, and it is

planned that patients will be short time patients. Organization of the staff has not been completed, but it will be directed by members of the department of neurology and psychiatry of the school of medicine, who will also serve as instructors.

LOUISIANA

Wilbur Smith Named Dean at Louisiana.—Dr. Wilbur C. Smith has been appointed dean at Louisiana State University School of Medicine, New Orleans, to succeed Dr. Beryl I. Burns, resigned effective September 1.

MONTANA

Hospital Survey.—A study to determine the need of hospital construction in Montana is nearing completion. Medical members of the more than twenty members who carried out the study include Dr. Edythe P. Hershey and Dr. Burton K. Kilbourne of Helena, who are on the staff of the state board of health. There are three other physicians on the board: Drs. James C. Shields, Butte; Maurice A. Shillington, Glendive, and E. Martin Larson, Great Falls.

NEBRASKA

Hospital Observes Seventy-Fifth Anniversary. — The Creighton Memorial St. Joseph's Hospital, Omaha, observed its seventy-fifth anniversary September 19 with a banquet. The first patient was admitted to the hospital Sept. 25, 1870. Dr. Bryan M. Riley, an alumnus and former dean of Creighton University School of Medicine, and Dr. John W. Duncan, graduate of the class of 1912 at the university and a former intern at St. Joseph's Hospital, reviewed the history of the institution. A feature of the meeting was the presentation of $1,000 by the staff to the Sisters of St. Francis to improve the facilites of the chapel of the hospital.

Ordinance to Improve Omaha's Health.—On September 19 an ordinance was introduced in the city council of Omaha to establish an Omaha board of health and provide for a full time health director. The ordinance was proposed by a specially appointed committee named by Mayor Leeman to submit recommendations for reorganization of the city health department. Members of the committee included Drs. Charles W. M. Poynter, dean of the University of Nebraska College of Medicine, chairman, and Dr. Charles M. Wilhelmj, dean of Creighton University School of Medicine, Dr. Roy W. Fouts, Dr. J. Jay Keegan and Seymour Smith, attorney, legal adviser. The ordinance proposes that the mayor, the superintendent of schools, an Omaha physician who has practiced in the city at least ten years and two public minded residents constitute the new board of health and serve without pay. The board would have charge of all public health activities and would appoint the health director subject to council approval. The local health department has up to now been under the mayor's supervision. A health commissioner appointed by the mayor and approved by the council has been in direct charge on a part time basis.

Midwest Clinical Assembly. — The thirteenth annual assembly of the Omaha Mid-West Clinical Society will be held at the Hotel Paxton, Omaha, October 22-26. Among the speakers will be:

Dr. Guy A. Caldwell, New Orleans, Treatment of Chronic Osteomyelitis.
Dr. Charles A. Doan, Columbus, Ohio, The Purpuric States.
Dr. Lester R. Dragstedt, Chicago, Newer Developments in the Surgical Treatment of Gastroduodenal Ulcers.
Dr. Elmer Belt, Los Angeles, Prostatic Obstructions in Age Groups: Early Infancy to Great Age.
Dr. Henry P. Wagener, Rochester, Minn., Loss of Vision in Patients with Hypertensive Disease and with Diabetes.
Dr. Archibald D. Campbell, Montreal, Quebec, Canada, Prenatal Care and the Interpretation of Certain Symptoms Suggestive of Toxemia of Pregnancy.
Dr. Burrill B. Crohn, New York, Peptic Ulcer as a Modern Concept of a Psychosomatic Disease.
Dr. Alan R. Moritz, Boston, Death by Violence or Under Suspicious Circumstances: The Medicolegal Responsibilities of the Attending Physician.
Dr. Sylvester N. Berens, Seattle, Ruptured Intervertebral Disk—An Orthopedic or Neurologic Problem.
Dr. Robert H. Felix, Washington, D. C., Maladjustment in the Returning Veteran: Comments on Etiology and Symptomatology.

The program will also include clinics and round table discussions. A panel discussion on military medicine will include:

Lieut. Col. Donald J. Wilson, M. C., Lichenoid Dermatitis.
Lieut. Col. Francis Murphey, M. C., Prolapsed Intervertebral Disk in the Cervical Region.
Major ThomasJ. Dry, M. C., Trench Foot—Medical Consideration.
Col. John B. Grow M. C., Surgical Management of the Unexpanded Lung.
Major Joseph E. Milgram, M. C., Functional Recovery from War Wounds of the Extremities.

NEW YORK

Regional Teaching Day. — "Psychotherapy in General Medicine" will be the theme of a regional teaching day program at the Hudson River State Hospital, Poughkeepsie, October 10, under the auspices of the Dutchess County Medical Society and the Medical Society of the State of New York. Among the speakers will be:

Dr. Leslie A. Osborn, Buffalo, Recognition and Management of Psychiatric Problems in General Practice.
Dr. James H. Wall, White Plains, N. Y., Psychiatric Aspects of Obstetrics and Gynecology.
Dr. Foster Kennedy, New York, The Neuroses: Related to the Manic Depressive Constitution.

District Meeting.—The thirty-ninth annual meeting of the Seventh District Branch of the Medical Society of the State of New York was held at the Clifton Springs Sanitarium and Clinic, Clifton Springs, September 27, under the presidency of Dr. Homer J. Knickerbocker, Geneva. Among the speakers were:

Dr. Edwin C. Foster, Penn Yan, Group Practice: Advantages, Disadvantages, Organization and Costs.
Mr. George P. Farrell, director of bureau of medical care insurance, Medical Society of the State of New York, City Prepaid Medical Care Insurance.
Dr. Albert M. Crance, Geneva, Modern Trends in Urology and Their Application to General Practice.
Dr. Earle B. Mahoney, Rochester, Burns: New and Improved Treatments.

New York City

The First Harvey Lecture.—Dr. James A. Shannon will deliver the first Harvey Lecture in the annual series sponsored by the Harvey Society in affiliation with the New York Academy of Medicine. The lecture will be given October 25 on "Chemotherapy in the Human Malarias."

Antirabic Clinic Opened. — An antirabic clinic in the borough of Queens was reopened in new quarters in Jamaica August 27. The clinic, which has been closed for more than two years, was opened again as a result of the discovery of three rabid dogs in Queens since June 28. Dr. Joseph Steisel is the physician in charge.

Ban on Sale of Antibiotic Drugs Lifted for Bandages Containing Tyrothricin. — At a meeting September 11 the New York City Department of Health approved an exception to the sanitary code to permit the sale of the antibiotic drug tyrothricin without a prescription and within a specified concentration on bandages for external application to the human skin. In announcing the exception Dr. Ernest L. Stebbins, health commissioner, emphasized the fact that the sale of all other antibiotic drugs, including penicillin, still requires the written prescription of a physician, dentist, podiatrist or veterinarian.

PENNSYLVANIA

Personal.—Dr. Sarah I. Morris, Philadelphia, has been appointed resident physician and professor of hygiene at Wilson College, Chambersburg, it was reported September 5. Professor of preventive medicine at Woman's Medical College of Pennsylvania since 1931, Dr. Morris was also director of the student health service of that institution for ten years. She had previously been associate professor in the clinical medical department of the University of Wisconsin Medical School, Madison, and a member of the university's student health department.

Philadelphia

Regional Course on Cancer.—The first of a projected series of regional postgraduate courses to be sponsored by the commission on education of the American College of Radiology in conjunction with selected teaching institutions will be conducted during the week of February 4 at the Philadelphia County Medical Society Building. This first and experimental course will be jointly sponsored by the college and the Philadelphia Roentgen Ray Society. Topics to be discussed include:

February 4, practical consideration of therapy problems concerned with the physics of radium and roentgen rays.
February 5, carcinoma of the female genital tract.
February 6, carcinoma of the breast.
February 7, carcinoma of the head and neck. The Philadelphia Roentgen Ray Society meeting is in the evening.
February 8, carcinoma of the skin and treatment of infections.
February 9, radiation treatment of blood dyscrasias and lymphoblastomas. Cancer detection clinics and important developments in cancer research.

It is proposed to give each registrant a mimeographed outline of the entire course. The program will be arranged to permit a round table discussion of practical problems. Subjects to be presented will include the pathologic, clinical and therapeutic aspects of the conditions under consideration. Teachers will be drawn from the fields of radiotherapy, sur-

gery, oncology, physics, biophysics and pathology. Advance registration may be made by writing to the Commission on Education of the American College of Radiology, 20 North Wacker Drive, Chicago 6.

TEXAS

Alumni-Faculty Foundation Created at Baylor.—The Baylor University College of Medicine, Houston, Alumni-Faculty Foundation has recently been organized "to promote and further medical education in the state of Texas by establishing an endowment and foundation in the interest of the welfare of the college of medicine of Baylor University and for aiding and extending the work and medical activities of the said college of medicine." Officers include Drs. Elisha F. Robbins, president; Herman W. Johnson and Henry A. Petersen, vice presidents, and Thomas P. Kennerly, secretary-treasurer. A group of twelve trustees has also been named. One of the activities of the newly established foundation is the creation of a lectureship in memory of those alumni who died during World War II.

Conference on Pediatrics. — A conference in pediatrics under the joint auspices of the University of Texas Child Health Program and the maternal and child health division of the Texas State Board of Health will be held at the University of Texas Medical Branch, Galveston, November 12-17. The program, arranged by Dr. Arild E. Hansen, professor of pediatrics, will include as speakers Drs. Alton Goldbloom, McGill University Faculty of Medicine, Montreal; Clifford G. Grulee, Rush professor of pediatrics, University of Illinois College of Medicine, Chicago; Joseph A. Johnston, pediatrician-in-chief, Henry Ford Hospital, Detroit; Rustin McIntosh, professor of pediatrics, Columbia University College of Physicians and Surgeons, New York, and Irvine McQuarrie, professor of pediatrics, University of Minnesota Medical School, Minneapolis. The conferences on pediatrics arranged by the University of Texas Child Health Program are supported by the William Buchanan Foundation of Texarkana.

Personal.—Simon Edward Sulkin, Ph.D., has been promoted to be professor of bacteriology and immunology of Southwestern Medical College and chairman of the department. The news item that appeared in THE JOURNAL, September 8, page 142, stating that Dr. Sulkin was acting chairman of the department was received from the Southwestern Medical Foundation.——Dr. Warren Andrew, associate professor of histology and embryology, Southwestern Medical College, Dallas, will carry on research during the next four months at the laboratory for histologic research of the medical school of the National University of Uruguay, Montevideo, it was reported in September. Dr. Andrew's work, which involves a study of microscopic changes in the body with advancing age, will be done in collaboration with Dr. Julio M. Sosa, director of the laboratory, and their findings will be published in both Spanish and English. The project is under the auspices of the Uruguayan government and of the U. S. Department of State.

VIRGINIA

Graduate Course in Ophthalmology. — The nineteenth annual spring graduate course in ophthalmology and otolaryngology will be held at the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, April 1-6, 1946.

Personal.—Dr. Elbyrne G. Gill, Roanoke, was recently appointed chairman of the city board of health and Dr. William R. Whitman vice chairman.——Dr. Ramon D. Garcin Sr. was recently named chairman of the Richmond Public Library Board, succeeding the late Dr. Beverley R. Tucker. ——Dr. Charles Preston Pope Jr., Aiken, S. C., has been appointed health officer of the Pulaski-Wythe Health District, effective August 1.

Memorial for Physician. — According to the *Virginia Medical Monthly*, the sum of $10,000 has been provided in the will of the late Mrs. Sallie B. Twymann as a memorial to her late husband for the establishment in the University of Virginia Department of Medicine, Charlottesville, of the Frederick W. Twymann Fund. The income is to be applied for research in cardiovascular disease under the direction of the department of internal medicine.

Fund for Blind Honors Physician.—Under the will of the late Mrs. Nellie Porterfield Dunn, widow of Dr. John W. Dunn, Richmond, a bequest is provided to benefit blind persons. There is also a stipulation that a residence at 411 East Franklin Street, Richmond, is to become a part of the "John Dunn Fund for the Blind" and some provisions for grants to blind persons who complete courses at vocational schools in order to allow for the interval between leaving school and finding employment.

WEST VIRGINIA

Personal.—Dr. William J. Habeeb has resigned from the staff of the Pinecrest Sanitarium, Beckley, to become superintendent and medical director of the Clark County Tuberculosis Sanatorium, Springfield, Ohio.——Dr. Benjamin I. Golden, Elkins, was recently appointed chief medical adviser for the West Virginia Department of the American Legion.

District Health Conferences.—"Public Health and the Returning Veteran" and "Sanitation in the Schools" will be the themes of a fall health conference of the Southern District to be held at Beckley October 11. "Public Health and the Rehabilitation Program" and "Interrelation Between the Field Worker and the State Hygienic Laboratory" will be the topics discussed at a similar conference in the Northern District at Wheeling, October 19.

Seminars on Psychiatry. — The psychiatric committee of the West Virginia State Medical Association has completed arrangements for the first of a series of regional seminars on psychiatry to be held in this state under the program adopted by the committee. Night meetings have been scheduled for Morgantown October 10, Huntington October 11 and Bluefield October 12. The meetings sponsored by the committee will be held under the auspices of local medical societies. Guest speakers will be Drs. Wendell S. Muncie, Baltimore, and Dale C. Cameron, Bethesda, Md. Additional seminars are being arranged for other cities in the state later in the year and early in 1946.

PUERTO RICO

Establishment of Health Centers.—An extensive program of public health services is now being considered by the department of health of Puerto Rico to construct two hundred public health centers in the rural areas of the island at a proposed cost of several million dollars. Sites have already been selected, each center to have a full time medical officer and a graduate nurse. A part of the program will be the cooperation of the public health units and the municipal hospitals to carry out a unified plan. The island of Puerto Rico has been divided into four public health districts, with a medical officer in charge of each. Special cancer services will be conducted under the auspices of the Puerto Rico Cancer Institute.

Hospital News. — Dr. Antonio Fernos-Isern, San Juan, commissioner of health of Puerto Rico, has recommended to the legislature and the planning board a plan to provide at least a hospital bed for each thousand inhabitants in each municipality of the island, to be carried out during the next two years. There are said to be forty-three of the seventy-seven municipalities on the island without hospital facilities at the present. There are thirty-four municipalities that have a bed for each thousand inhabitants or more. Cost of repairs, reconstruction or remodeling in the first group is estimated at $1,075,000, while estimates have not been made for the second group. The report indicates that the legislature has passed bills appropriating $550,000 to aid municipal hospitals, but the amount is considered insufficient.

GENERAL

Louis Neff Placed in Charge of Cancer Society's Office.—Mr. J. Louis Neff, recently appointed executive director of the American Cancer Society, New York (THE JOURNAL, Dec. 25, 1943, p. 1129) has been placed in full charge of the society's headquarters office, subject to the authority of the executive committee of the board of directors of the society. Mr. Neff is taking charge following the resignation of Rear Admiral Charles S. Stephenson (MC), U. S. Navy, retired, as acting managing director (THE JOURNAL, June 9, p. 454).

Anniversary of Discovery of X-Rays. — The fiftieth anniversary of the discovery of the x-rays will be nationally observed November 5-10 under the sponsorship of the American College of Radiology. The anniversary celebration will mark the development of x-rays as a medical instrument and call public attention to the uses of radiology in the diagnosis and treatment of disease. It will also seek to educate the public to the services of the radiologist, a physician who specializes in the medical applications of the x-rays, devoting his skill to the interpretation of x-ray films for diagnosis and the application of x-rays in the treatment of many maladies.

Association of American Medical Colleges.—The fifty-sixth annual meeting of the Association of American Medical Colleges will be held at the William Penn Hotel, Pittsburgh, October 29-31, under the presidency of Dr. Albert C. Furstenberg, Ann Arbor, Mich. The University of Pittsburgh School of Medicine will be the host. The speakers will include:

Kenneth W. Vaughn, Carnegie Foundation, New York, The Graduate Record Examination.
Dr. William Worth Hale, Boston, Measurement of Aptitude for Medicine.
Carlyle F. Jacobsen, Ph.D., St. Louis, subject not announced.
Tom Jones, Chicago; Lewis Waters, Ph.G., Dallas; Harry E. Morton, Ph.D., Philadelphia; Joseph E. Markee, Ph.D., Durham, N. C., and Comdr. Dean F. Smiley (MC), Visual Education.
Dr. Edward R. Mugrage, Denver, Appointment and Tenure of Faculty of Professional Rank.
William T. Sanger, LL.D., Richmond, Va., What the Educator Thinks the Ideal Medical Curriculum Should Be.
Dr. Tinsley R. Harrison, Dallas, Tradition: The Rivet in the Medical Curriculum.
Harold Cummins, Ph.D., New Orleans, Embryology in the Medical Curriculum.
Dr. Alexander H. Colwell, Pittsburgh, subject not announced.

Civilian Defense Activities Merged with Red Cross.—Under a spirit of cooperation that has existed between the U. S. Office of Civilian Defense and the American National Red Cross since the creation of the former, recommendations have been made to consolidate all emergency medical services with the Red Cross disaster service. Chapter chairmen of the Red Cross have been advised with the approval of Dr. George Baehr, formerly chief medical officer of the U. S. Office of Civilian Defense, to communicate with commanders of civilian defense corps and with the local chiefs of emergency medical service to discuss the consolidation. The U. S. Office of Civilian Defense was closed July 1. The emergency medical service available through the state and local organizations has proved to be an invaluable community asset and should not be allowed to disintegrate, according to Dr. Baehr. The proposed consolidation with the Red Cross disaster service would serve to make it a permanent part of the community resources, a plan which has already been carried out in some communities. On August 7 Dr. Baehr directed a letter to state and local emergency services urging their cooperation with the Red Cross disaster service in the proposed consolidation.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended September 22 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Poliomyelitis Week Ended Sept. 22, 1945	Poliomyelitis Week Ended Sept. 23, 1944
New England		
Maine	9	6
New Hampshire	1	5
Vermont	5	8
Massachusetts	51	34
Rhode Island	1	1
Connecticut	11	17
Middle Atlantic		
New York	110	383
New Jersey	55	40
Pennsylvania	48	82
East North Central		
Ohio	37	77
Indiana	11	20
Illinois	93	38
Michigan	12	75
Wisconsin	48	26
West North Central		
Minnesota	23	45
Iowa	14	13
Missouri	9	15
North Dakota	0	3
South Dakota	1	1
Nebraska	14	3
Kansas	8	5
South Atlantic		
Delaware	2	8
Maryland	[c]13	31
Dist. of Columbia	7	14
Virginia	19	48
West Virginia	3	18
North Carolina	14	23
South Carolina	6	2
Georgia	[c] 6	3
Florida	12	1
East South Central		
Kentucky	3	31
Tennessee	21	12
Alabama	4	1
Mississippi	5	9
West South Central		
Arkansas	2	1
Louisiana	10	5
Oklahoma	15	2
Texas	39	5
Mountain		
Montana	7	8
Idaho	2	0
Wyoming	3	0
Colorado	11	2
New Mexico	1	1
Arizona	0	9
Utah	22	0
Nevada	0	1
Pacific		
Washington	20	5
Oregon	2	12
California	54	9
Total	864	1,158
First 38 weeks:		
1945 and 1944	8,890	13,570
Median, 1940-1944	5,803	

c. Exclusive of 1 case, Maryland, and 13 cases, Georgia, delayed reports, included in cumulative total only.

Joe Savage Joins National Foundation.—Major Joe W. Savage, for seventeen years executive secretary of the West Virginia State Medical Association, has accepted a position with the National Foundation for Infantile Paralysis, with headquarters in New York. He will work directly under Basil O'Connor, president. Major Savage was released from active duty with the Army Air Forces on September 1 after serving for more than three years with the AAF training command for navigators at various air fields in Texas. At the time of his separation he was director of military training at San Marcos Army Air Field, San Marcos, Texas. During World War I Major Savage served as an army pilot in France for over two years. Major Savage has had some former experience with the national foundation. During the March of Dimes campaign in 1941 he was granted a leave from the state medical association to assist the national foundation drive. Following four months' service with the foundation he continued to be organizational consultant for several months, visiting local chapters in every part of the United States. Major Savage was at Warm Springs, Ga., several days in September and was to start his new duties in New York the first of October.

LATIN AMERICA

Health Activities in Latin America.—*Visitors to the United States.*—Sylvia Hasselmann, chief of the vital statistics department of the Brazilian Public Health Service, arrived in Miami from Rio de Janeiro July 27 to make a tour of hospitals in the United States. Dr. Herman Bennett of the Chilean Health department arrived July 27 in Miami on his way to Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, to make a study of blood transfusions. Dr. Julio Roberto Herrera, director general of public health of the Republic of Guatemala, has gone to the United States to make a study of public health services. Dr. Herrera studied under a Rockefeller Foundation fellowship at Johns Hopkins University in 1937, receiving the degree of master in public health from the Johns Hopkins University School of Hygiene and Public Health.

Industrial Hygiene Program in Chile.—In preparation for launching a nationwide program in industrial hygiene, the republic of Chile has sent a number of its nationals for training to the United States, according to the *Industrial Hygiene News Letter*. The training is a part of a program for reorganization of the Chilean public health services in cooperation with the Institute of Inter-American Affairs, the Rockefeller Foundation, the Pan American Sanitary Bureau and the Commonwealth Fund. Most recent trainees have been Dr. Alejandro Forero, chief of the Santiago Industrial Hygiene Office of the Chile Public Health Service, who will head the new industrial health service, and Carlos Valenzuela, Ch.Eng., M.Sc. They have just completed their training period, Dr. Forero at Columbia and Mr. Valenzuela at Harvard. Following this training, these men are observing the work of the U. S. Public Health Service Industrial Hygiene Division and various state industrial hygiene laboratories, as well as laboratories of non-official agencies and private industries. On their return to Chile, Dr. Forero and Mr. Valenzuela will organize and teach a course in industrial health in the University of Chile, Santiago. The industrial health course, organized as a part of the public health school of the University of Chile, will offer training to public health personnel, industrial physicians, chemists and engineers, who will then be sent to the United States for further instruction. Authorities in the United States are to be invited to Chile as visiting lecturers and consultants. It is hoped to complete a reorganization of the general program in public health as soon as possible under the direction of Dr. Nacianceno Romero, general director of health. By 1951 it is expected that enough industrial health workers will have been trained to serve the whole nation, with industrial hygiene units established in the main mining and industrial centers and in every important city.

Public Health Libraries.—The National Medical and Public Health Library has been established in the new health center building in Managua, Nicaragua. Books, pamphlets and periodicals of the Direccion General de Sanidad, the Servicio Cooperativo Interamericano de Salud Publica and the Institute of Inter-American Affairs form the nucleus of the library, which is said to be the first of its kind in the republic of Nicaragua. A cooperative arrangement has been made with the American Library of Nicaragua, also located in Managua, where books of that library on medical and allied subjects are listed in the health center library and may be used by staff members and other persons. In Brazil, the library of the Servico Especial de Saude Publica was established in July 1944 under its health education division. It is a medical library specializing in hygiene, public health and health education.

Hospital News.—Funds with which to construct a tuberculosis hospital in Panama will be derived from a 2.5 per cent increase in the taxes imposed on wagers at horse race tracks, President Enrique Jimenez announced recently. The Republic of Panama is said to have one of the highest tuberculosis rates in the world.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 8, 1945.

The World Control of Narcotic Drugs

A meeting of the Permanent Central Opium Board has been held in London. The president, Sir Atul Chatterjee, described the world drug position. The board wishes to return to the prewar conditions of control. All countries signatory to the conventions (that is, every considerable country excepting Argentina) are required to send in estimates of their needs of narcotic drugs for consumption, manufacture or export for the coming year. These are examined by the Supervisory Commission—an allied organization to the board—and no country is allowed any excess of the figure without submitting a supplementary estimate. At the beginning of the war every government was asked to keep intact national control and to collaborate with the board in international control. But during the war some retrogression has taken place in many countries, especially those with colonies. In normal times the board received some 1,500 returns annually from governments. By 1941 this had fallen to 1,000. The axis or axis occupied countries are the chief defaulters, but Russia ceased sending when it severed connection with the League of Nations. Control is being resumed or continued in Belgium, the Netherlands and Scandinavia. In South America the situation varies. Control is satisfactory in Colombia and, though Argentina has not ratified the convention, that country sends full returns. In Peru, a cocaine exporting country, there has been great improvement, but in Panama and some other places in Central and South America control hardly exists.

Secondary Diphtheritic Infection of Empyema and Thoracotomy Wounds

In *Guy's Hospital Reports* R. C. Brock points out that, while secondary diphtheritic infection of chronic skin lesions is widely known, the fact that it can occur in a wound due to war, accident or operation may be overlooked, with disastrous consequences. Chest wounds are particularly liable to be attacked, presumably by way of the upper respiratory passages but also by direct infection. Brock has several times observed diphtheritic infection of the chest wounds of acute or chronic empyema, lobectomy and pneumonectomy. His first experience was in a young man with chronic empyema who came to the hospital complaining of paralysis of the legs. Examination revealed severe peripheral neuritis of motor type affecting the lower limbs. In the discharge from the wound an organism was found which gave a positive test for diphtheria in a guinea pig. Under rest and antitoxin the paralysis slowly resolved. How dangerous the complication may be is shown by the fact that during the last ten years Brock has seen five outbreaks of diphtheritic infection in wards devoted to thoracic surgical cases. In each outbreak deaths occurred. In three outbreaks a patient was submitted to thoracotomy before the presence of infection in the ward was recognized. In one outbreak several nurses contracted diphtheria, one of whom died. Several patients also developed faucial diphtheria. In only one outbreak was there ground for the suspicion that any nurse or member of the staff might have been the carrier responsible.

Although much has been written on diphtheritic infection of wounds in general, references to thoracic wounds are few and there appears to be none in English literature. But German literature of the last war recognized the condition, and one writer stated that "empyema wounds were particularly liable to infection." Outbreaks were also reported in American military hospitals in the last war. Simmons and Bigelow in 1919 described the rapid spreading of infection to as many as 60 empyema wounds. Response to immediate quarantine and vigorous treatment was poor. It was suggested that the reason why all local methods proved unsatisfactory was that the bacilli grew deep in the granulations. Frequently when superficial cultures were negative the organisms could be readily obtained by curetting.

In Hurst's Medical Diseases of the War Harries (1943) gave a valuable account of cutaneous and wound diphtheria: "In the early stage of infection the wound becomes painful and reddened. There is at first an irritating serous discharge, which is replaced in a few hours by a more or less typical pseudomembrane gray or grayish yellow, thin or thick. If the membrane is removed, it reforms. The edges of the wound may either become livid, infiltrated and definitely raised (phlegmonous type) or undermined with fetid pus, in which case they are not invariably reddened (ulcerative type). Vesicles may form on the edges of the wound; these may rupture and then become covered with pseudomembrane." Other writers have described the appearance of the wounds as varying and in no way typical. Brock noticed nothing characteristic; some of the wounds were red and angry, others merely indolent and discharging pus. Tincture of iodine has been recommended as the best application. Once established in a ward, the infection rapidly spreads. The only course is to stop all admissions and send the patients to an isolation hospital. Antitoxin should be given at once and in full doses.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Sept. 15, 1945.

Allergy to Ascaris Lumbricoides

Dr. M. Rocha e Silva of the Biological Institute of São Paulo has performed, since March of last year, a series of experiments to ascertain the mechanism of the shock produced in dogs by the extract from Ascaris lumbricoides. According to a recently published report the precipitated, dialyzed and deproteinized extracts of Ascaris apparently contain a glycogen-like material and a proteose-like substance which, introduced intravenously in doses of 5 to 10 cc., produce in dogs a group of severe symptoms indistinguishable from true anaphylactic shock: enormous engorgement of the liver, increased pressure in the portal vein, abdominal hyperemia and a decided fall of the carotid blood pressure. Since the animals did not receive a preparatory injection of the extract, the shock was attributed to an endogenous, spontaneously acquired sensitization of allergic type, due to the presence of parasites in the intestinal tract. The situation seems to be similar to Van Es and Schalk's finding of an anaphylactic-like shock in horses intravenously injected with extracts from larvae of Gastrophilus intestinalis, a parasite common in the digestive tract of those animals. Enormous increases in blood histamine, especially at the trunk of the portal vein, were observed.

Experiments of perfusion of the isolated liver were performed in order to clarify the mechanism of the discharge of histamine and heparin. Perfusing the liver with Tyrode's solution or defibrinated blood plus Ascaris extract is not enough to discharge the histamine and the heparin previously bound to liver cells. This led to the idea that total blood contains a factor or factors concerned with the reaction. The suggestion that platelets and leukocytes are those factors was considered very probable on the basis of these three facts: 1. Leukocytes and platelets are enormously reduced in the blood immediately after the injection of the extract. 2. Glycogen extracted from dog's liver produces reductions in the leukocytes and platelets of the same order of magnitude as Ascaris extracts but do not induce shock. 3. In experiments of liver perfusion with total citrated or oxalated blood, leukocytes and platelets are retained by the liver cells as soon as

the Ascaris extract is injected, and at the same time a small discharge of histamine and heparin is observed in most cases. Further experiments have shown that platelets can be found forming enormous aggregates in Giemsa stained smears prepared from pieces of liver taken immediately after the injection of the Ascaris extracts, and there was clear indication that those aggregates are disintegrated during the onset of the reaction. The author suggests the hypothesis that products derived from disintegrated platelets (trypsin kinase) might activate the plasma trypsin, and this would be the final mediator for the histamine and heparin discharge from liver cells.

Personal

Dr. Raul David de Sanson has been appointed professor of otorhinolaryngology at the University of Rio de Janeiro. He is one of the leading practitioners of this specialty in the city and was already serving at the university as professor ad interim.

Dr. Fabio C. de Mendonça, director of the Bureau of Sanitary Defense of Harbors and Airports of the National Department of Health, has just left for the United States to meet the director of the health division of the UNRRA for the discussion of some problems in that special field of work.

Dr. J. Bonifacio Medina has been appointed professor of clinical gynecology at the University of São Paulo.

Dr. Godinho dos Santos, surgeon general of the Brazilian air force, and Lieut. José Inis Guimarães of the same service have left for the United States, at the invitation of the American government, to visit military hospitals and other establishments connected with the problems of the health of American soldiers.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 9, 1945.

Exploitation of Drugs

The Committee for Promoting the Exploitation of Drugs recently requested the collaboration of the authorities of the Institute of Pharmacology and Therapeutics of the Faculty of Medicine of the University of Buenos Aires. The object is to prepare and sell various medical preparations such as atropine, morphine and digitalis, which up to now have been imported. The committee also carries on investigations aimed at intensifying the production of industrial essential substances such as peppermint and lavandula and insecticides for use in the country and for export.

Diagnosis of Tuberculosis

The Argentine League Against Tuberculosis recently published the results obtained by x-ray examination of the thorax at the Abreu center. The rate of tuberculosis as it was found in a series of 166,600 persons who had examinations during the years 1940 to 1943 was surprising. A percentage of 7.42 tuberculous patients believed themselves normal and lived with the rest of the family without observing any precautions. A percentage of 2.71 tuberculous patients who believed themselves normal lived without any family. Early tuberculosis among 4,000 persons was found by means of the x-ray examination of the thorax. Early treatment was administered.

Rationing Quinine

The National Department of Public Health recently passed regulations through which buying, prescribing and selling quinine are justified only when the drug is to be used in the control of malaria. Drugstores in nonmalarial zones of the country are allowed to have 10 Gm. of quinine, to be used in serving prescriptions for patients with malaria. The amount of the drug is replaced, with proper authorization, as soon as the owners give an account to the proper authorities of having used the drug in filling prescriptions for patients with malaria.

Congresses

The second South American Congress of Otorhinolaryngology was recently held in the University of Montevideo, Uruguay. Dr. J. M. Alonso was the president. Well known specialists of Argentina, Brazil, Peru, Paraguay, Bolivia, Mexico, Chile, Ecuador and Venezuela attended.

The seventeenth Argentine Congress of Surgery will be held in 1946. The official topics will be the diagnosis and treatment of intussusception in children, the therapy of pseudoarthrosis and the diagnosis and results of operation in cancer of the lung.

The first Argentine Congress of Neurosurgery was organized by the Argentine Medical Association. Dr. Roque Orlando of Buenos Aires is the president of the association. The congress was held at Buenos Aires on Nov. 12 to 18, 1944. There were delegations and official speakers from Chile, Brazil, Bolivia, Paraguay and Uruguay. Official speakers were Drs. Vivado Qrsini of Santiago, Chile, Adherbal Tolosa and Paulino Longo of São Paulo, Brazil, and Ramón Melgar, Ramón Carrillo and Enrique Pichón Riviere, all of Buenos Aires. Official topics were clinical symptoms for the prognosis of schizophrenic psychoses, the therapy of algias in neurology and lobotomy in psychiatry.

The seventh National Congress of Medicine of Argentina, which was postponed in 1943, will be held in Buenos Aires April 7 to 14, 1946.

The first gastroenterologic meeting of the Society of Gastroenterology and Nutrition will be held on Rio de la Plata on October 8 and 9. Dr. Oscar Copello will be the president. Official speakers are Dr. Carlos Bonorino Udaondo of Buenos Aires, "Infiltrative Sigmoiditis"; Dr. Mariano R. Castex of Buenos Aires, "Diverticular Sigmoiditis"; Dr. Julio Diez of Buenos Aires, "Surgical Therapy of Noncancerous Diseases of Sigmoid," and Dr. Julio Carrere of Uruguay, "Perisigmoiditis and Complications."

Deaths

Dr. Rafael A. Bullrich of Buenos Aires, who specialized in cardiology, died Oct. 28, 1944 at the age of 67.

Dr. Mariano Alurralde of Buenos Aires, a neurologist and professor of clinical neurology at the Faculty of Medicine of Buenos Aires, recently died.

Prizes

The Bullrich prize for the best article on cardiology during a period of two years was recently established in homage to the late Dr. Rafael A. Bullrich.

Marriages

Samuel Clark Atkinson, Drew, Miss., to Miss Marjorie Sturtevant Webb in North Plainfield, N. J., August 26.

Richard Frederick Auler, St. Louis, to Miss Lillian Pauline Haugen of Madison, Wis., July 7.

George C. Graham, Bellerose, N. Y., to Dr. Muriel E. Huene of Queens Village, June 23.

Carl K. Pearlman, Brooklyn, to Miss Agnes E. Branch of Huntington, W. Va., recently.

George M. Kozeruba, Wilmington, N. C., to Miss Berniece Carey in New Orleans, April 6.

James Bates Kittrell to Miss Ruth Estelle Hendrick, both of Texarkana, Ark., July 27.

Edwin Clarence Morgan to Miss Marjorie Larman, both of Russellville, Ky., April 18.

Frank J. Kelly, Kansas City, Mo., to Miss Dorothy Rita Paige of St. Louis, June 16.

George Peyton Kelley to Miss Bessie Browder, both of Shreveport, La., July 14.

Lorraine Anna Laneuville, Scranton, Pa., to Mr. C. A. Jones, June 30.

Deaths

Joseph Chauncey Gerard Regan ✠ Brooklyn; University and Bellevue Hospital Medical College, New York, 1913; born in New York, Sept. 18, 1891; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics, Brooklyn Academy of Pediatrics, Brooklyn Clinical Society, Brooklyn Medical Library Association and the Catholic Physicians Guild; formerly on the faculty of the Long Island College Hospital; chairman of the milk commission of the Kings County Medical Society; served on the staffs of the nursery school, St. Joseph's College for Women, the Victory Memorial Hospital, St. Charles Hospital Orthopedic Clinic and St. Catherine's Hospital, all in Brooklyn, the Holy Name Hospital in Teaneck, N. J., and St. Charles Hospital for Crippled Children in Port Jefferson; formerly associated with the Kingston Avenue Hospital; died in Garden City, N. Y., August 15, aged 53.

Henry Roosevelt Craig, Eloise, Mich.; University of Georgia Medical Department, Augusta, 1928; member of the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; senior psychiatrist at the Eloise Hospital; interned at the Watts Hospital in Durham, N. C.; resident in medicine at the Church Home and Infirmary in Baltimore; formerly assistant in gastroenterology and cardiology at the Henry Ford Hospital in Detroit, graduate assistant in cardiology at the Massachusetts General Hospital in Boston, member of the neurologic service, Boston City Hospital, and physician at the Norfolk Prison Colony in Norfolk, Mass., and the Worcester State Hospital in Worcester, Mass.; died in Ann Arbor, Mich., June 23, aged 41, of acute myoblastic leukemia.

Homer Henderson Wheeler ✠ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1897; served as assistant professor of surgery (proctology) at the Indiana University School of Medicine; member of the American Proctologic Society and the National Gastroenterological Association; fellow of the American College of Surgeons; served during World War I; on the staffs of the Indianapolis City, St. Vincent's and Methodist hospitals; died in the Temple University Hospital, Philadelphia, July 3, aged 72, of cardiovascular collapse.

Osbourne Orlando Ashworth ✠ Richmond, Va.; Medical College of Virginia, Richmond, 1921; also a graduate in pharmacy; member of the American College of Chest Physicians, Richmond Academy of Medicine, Southern Medical Association, American Heart Association, American Rheumatic Association, Tri-State Medical Society, the Virginia Academy of Science and the American Trudeau Society; interned at St. Elizabeth's Hospital; on the staff of the Stuart Circle Hospital; died in Gloucester County July 5, aged 49, of heart disease.

Henry M. Beckwith ✠ Joliet, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1897; died in Poplar Bluff, Mo., June 27, aged 78, of injuries received when struck by an automobile.

George Delos Beech ✠ Rio Hondo, Texas; Rush Medical College, Chicago, 1891; mayor of Rio Hondo; on the staff of the Valley Baptist Hospital, Harlingen; died July 5, aged 77, of heart disease.

John L. Benage, Lebanon, Mo.; St. Louis College of Physicians and Surgeons, 1901; member of the American Medical Association; since 1920 health officer; on the staff of the Wallace Hospital; died June 27, aged 70, of cerebral hemorrhage.

Bolling Sasnett Branham, Powder Springs, Ga.; Atlanta College of Physicians and Surgeons, 1908; member of the American Medical Association and the Medical Association of the State of Alabama; served with the Fairfield Dispensary of the Tennessee Coal, Iron and Railroad Company in Fairfield, Ala.; died July 1, aged 64, of bronchopneumonia.

James Fleming Breakey, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; retired member of the Michigan State Medical Society; member of the American Medical Association; formerly on the faculty of his alma mater; served overseas with Base Hospital number 17 during World War I; on the staff of St. Joseph's Mercy Hospital; died in the University Hospital June 26, aged 75, of carcinoma of the cecum.

John E. Campbell, Brown City, Mich.; Detroit College of Medicine, 1892; served as mayor of Brown City and as a member of the board of education; died June 28, aged 76, of cerebral hemorrhage.

John Canuel, Fall River, Mass.; College of Physicians and Surgeons, Boston, 1935; interned at St. James Hospital in Newark, N. J.; on the staff of St. Anne's Hospital; physician for the state boxing commission; died June 27, aged 41, of acute dilatation of the heart.

John Henry Cleary ✠ Kenosha, Wis.; College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1902; past president and secretary of the Kenosha County Medical Society; served on medical examining boards during World Wars I and II, receiving commendation from the government for his patriotic and untiring service along these lines; on the staffs of the St. Catherine's Hospital and the Kenosha Hospital, where he died July 20, aged 71, of aplastic anemia.

Edith May Cole, Louisville, Ky.; University of Louisville School of Medicine, 1937; resident physician at St. Mary's Hospital in Athens, Ga.; interned at the Wesley Hospital in Wichita, Kan., and St. Anthony's Hospital; formerly resident physician at the Woman's Hospital in Philadelphia; died in the Jewish Hospital June 14, aged 61, of carcinoma of the uterus.

Thomas Edward Cole, LeMars, Iowa; College of Physicians and Surgeons, Chicago, 1890; died June 7, aged 84, of cancer of the kidneys.

Henry John Collins ✠ Trenton, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1917; served during World War I; on the staff of the F. W. Donnelly Memorial Hospitals and St. Francis Hospital, where he died June 21, aged 55, of chronic myocarditis and auricular fibrillation.

Byron Bartlett Colvin ✠ Cleveland; University of Wooster Medical Department, Cleveland, 1908; served overseas during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; on the courtesy staffs of the Huron Road, Charity, St. Alexis and St. Luke's hospitals; served as chief of staff of Woman's Hospital where he died June 20, aged 63, of heart disease.

William Homer Conklin, New York; College of Physicians and Surgeons, Baltimore, 1906; served during World War I; died May 10, aged 61, of cerebral arteriosclerosis with psychosis.

Joseph Bruce Crook ✠ East Haddam, Conn.; New York Homeopathic Medical College and Flower Hospital, New York, 1913; served as health officer; for many years coroner's medical examiner; a first lieutenant in the medical corps of the U. S. Army during World War I; died in the Middlesex Hospital, Middletown, June 29, aged 59, of abdominal lymphosarcoma.

David Aloysius Flynn, New Haven, Conn.; Yale University School of Medicine, New Haven, 1905; medical supervisor of the Springside Home; died in the Hospital of St. Raphael June 25, aged 65, of bronchopneumonia and heart disease.

Michael Archangel Galgano ✠ Chicago; University of Illinois College of Medicine, Chicago, 1914; member of the American Urological Association; died July 14, aged 54, of myocarditis.

Eric Julian Gambee, Earling, Iowa; John A. Creighton Medical College, Omaha, 1917; member of the American Medical Association; served during World War I; died in St. Joseph's Hospital, Omaha, July 5, aged 54, of injuries received in an automobile accident.

George Glucksman, Long Beach, N. Y.; Long Island College Hospital, Brooklyn, 1904; died June 2, aged 63, of pulmonary hemorrhage.

Murray William Goldsmith, New York; Universität Bern Medizinische Fakultät, Switzerland, 1936; died in the Kings Park (N. Y.) State Hospital May 15, aged 35, of pulmonary tuberculosis.

John Joseph Halnan, Paterson, N. J.; University College of Medicine, Richmond, 1907; served in France during World War I; died June 28, aged 65, of chronic hepatitis and myocardial failure.

Clare Heilner Hanley, Scranton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the American Medical Association; served in France during World War I; died June 30, aged 63, of cerebral hemorrhage.

Edward Albert Hanske ✠ Bellevue, Iowa; Louisville (Ky.) Medical College, 1901; died June 21, aged 72, of coronary thrombosis.

Paul Robert Lavin, East Islip, N. Y.; Temple University School of Medicine, Philadelphia, 1932; interned at St. Vincent's Hospital in New York; served a residency at the Central Islip State Hospital in Central Islip, N. Y.; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 26, 1941; service terminated in September 1942; on the staff of the Southside Hospital, Bay Shore; died in West Islip July 6, aged 39, of injuries received in an automobile accident.

Carl Clayton Mann, Rumson, N. J.; University of Buffalo School of Medicine, 1895; died June 1, aged 75.

John Edwin Manney, San Antonio, Texas; Dallas Medical College, 1904; member of the American Medical Association; served during World War I; died in the Medical and Surgical Memorial Hospital May 27, aged 72, of acute ileus, atrophy of the liver and adhesions of the cecum.

George M. Monk, Newton Grove, N. C.; University of North Carolina School of Medicine, 1908; died in the State Hospital, Raleigh, June 27, aged 76, of heart disease.

Edward Lloyd Morrison ✠ Washington, D. C.; Jefferson Medical College of Philadelphia, 1905; specialist certified by the American Board of Ophthalmology; on the staff of the Episcopal Eye, Nose and Throat Hospital; chief of eye service at the Doctors Hospital, where he died August 14, aged 66, of coronary thrombosis.

Guy Ramsey ✠ Sioux Falls, S. D.; Drake University Medical Department, Des Moines, 1901; formerly contract surgeon in the U. S. Army; company physician for John Morrell & Company for two years; died August 19, aged 75, following an operation for carcinoma of the stomach.

Benjamin Lewis Rawlins, Hinsdale, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1889; formerly health officer of Hinsdale; for many years associated with the Equitable Life Assurance Company; died July 11, aged 77, of intracranial hemorrhage.

John Herbert Reading Jr., Merion Station, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1917; associate in pediatrics at his alma mater; on the staff of the Hahnemann Hospital; served during World War I; died July 3, aged 55, of cerebral hemorrhage.

Buford Allen Russell, Sherman, Texas; Birmingham (Ala.) Medical College, 1912; member of the American Medical Association; served as health officer of Grayson County; died in the Wilson N. Jones Hospital June 15, aged 57, of carcinoma of the liver.

Henry Alexander Shaw ✠ Pittsburgh; University of Pittsburgh School of Medicine, 1911; died May 14, aged 63, of coronary occlusion and hyperthyroidism.

William Henley Smith ✠ Trenton, N. J.; Jefferson Medical College of Philadelphia, 1917; on the staff of the Mercer Hospital; died June 1, aged 51, of coronary thrombosis.

Robert Hill Tedford ✠ Albany, N. Y.; Albany Medical College, 1893; an Affiliate Fellow of the American Medical Association; died June 26, aged 81, of carcinoma of the colon.

Gilbert Jefferson Thomson, Terre Haute, Ind.; Medical College of Indiana, Indianapolis, 1905; died June 16, aged 70, of myocarditis.

Corlis H. Wallin, Brooksville, Ky.; University of Louisville Medical Department, 1894; member of the American Medical Association; served as health officer of Bracken County; died June 15, aged 72.

Alexander W. Widner ✠ Newtown, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; Missouri Medical College, St. Louis, 1892; died August 21, aged 76, of pneumonia and coronary thrombosis.

Robert Edward Wilson ✠ St. Louis; Washington University School of Medicine, St. Louis, 1896; for many years medical adviser for the Southwestern Bell Telephone Company; died in the Barnes Hospital July 14, aged 74, of sarcoma of the bladder.

William Johnston Yongue ✠ Lafayette, La.; University of Louisville Medical Department, 1913; died June 6, aged 56, of coronary thrombosis.

John Behan York, Houston, Texas; Medical College of Ohio, Cincinnati, 1896; member of the American Medical Association and the Southern Psychiatric Association; for many years psychiatrist for Harris County; died June 15, aged 73, of uremia.

DIED WHILE IN MILITARY SERVICE

Earl Melvin Anderson, Minneapolis; University of Minnesota Medical School, Minneapolis, 1941; interned at the Minneapolis General Hospital; served a fellowship in surgery at the Mayo Foundation in Rochester, Minn.; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on March 3, 1942; promoted to lieutenant; navy flight surgeon; died at the Naval Air Station in Glenview, Ill., July 5, aged 28, of extreme multiple injuries received in an airplane crash.

George Sanford Foster ✠ Manchester, N. H.; Tufts College Medical School, Boston, 1906; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on Oct. 5, 1942; died in the U. S. Naval Dispensary in Washington, D. C., July 10, aged 63, of arteriosclerotic coronary heart disease.

Joseph Edward Hoenninger, Lancaster, Pa.; Temple University School of Medicine, Philadelphia, 1942; interned at St. Joseph's Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 16, 1943; died in Camp Carson, Colo., Oct. 30, 1943, aged 28.

Henry Wilds Patton ✠ Captain (MC), U. S. Navy, Aiea Heights, Hawaii; University of Virginia Department of Medicine, Charlottesville, 1925; diplomate of the National Board of Medical Examiners; interned at the U. S. Naval Hospital in Norfolk, Va.; commissioned an assistant surgeon, lieutenant (jg), in the medical corps of the U. S. Navy on June 4, 1925; rose through the various ranks to that of captain on April 1, 1943; served on the staffs of the naval hospitals at Great Lakes, Ill., San Diego, Calif., and Pensacola, Fla., and as medical officer aboard the carrier *Lexington,* the battleship *New York* and the cruiser *Boise;* while senior medical officer of the transport *Crescent City* he participated in many of the early battles of the Pacific war; served as officer in charge of the hospital corps school in San Diego; at one time executive officer at the U. S. Naval Hospital in Pearl Harbor; executive officer of the U. S. Naval Hospital in Aiea Heights, where he died suddenly June 10, aged 46, of coronary heart disease.

Amos Alexander Plante ✠ Maplewood, N. J.; Columbia University College of Physicians and Surgeons, New York, 1927; interned at the Orange Memorial Hospital in Orange; began active duty as a captain in the medical corps, Army of the United States, on Nov. 12, 1943; assigned to the 216th General Hospital; died in France May 23, aged 45, in an airplane crash.

Kenneth Marshall Sears, Elburn, Ill.; Rush Medical College, Chicago, 1931; member of the American Medical Association; interned at the Wesley Memorial Hospital in Chicago; began active duty as a first lieutenant in the medical corps, Army of the United States, on Jan. 15, 1942; later promoted to captain and major; went overseas in September 1944 and in charge of a hospital train evacuating wounded from the front lines in Paris; died in the Copley Hospital, Aurora, June 2, aged 41, of multiple myeloma, plasma cell type.

Bruce Taylor Smith ✠ Fort Covington, N. Y.; McGill University Faculty of Medicine, Montreal, Que., 1925; interned at the Royal Victoria Hospital in Montreal; began active duty as a captain in the medical corps, Army of the United States, on Aug. 31, 1942; promoted to major; died in the European area Sept. 19, 1944, aged 42, in an airplane accident.

Joseph John Stasko, Chicago; Northwestern University Medical School, Chicago, 1944; interned at the Cook County Hospital; commissioned a lieutenant (jg), medical corps, U. S. Naval Reserve, on Dec. 18, 1943; began active duty Oct. 9, 1944; served overseas for about seven months; died in the Asiatic area June 17 while on the hospital ship U. S. S. *Refuge,* aged 33, of aplastic pernicious anemia.

Talcott Wainwright, Scranton, Pa.; Columbia University College of Physicians and Surgeons, New York, 1933; member of the American Medical Association; interned at the Moses Taylor Hospital and a residency at the Nanticoke (Pa.) State Hospital; began active duty as a captain in the medical corps, Army of the United States, on Sept. 1, 1941; promoted to major; died in the Philippine Islands April 19, aged 41, of coronary thrombosis.

Correspondence

CUTANEOUS HELMINTHIASIS

To the Editor:—In THE JOURNAL, August 11, Wright and Gold referred to Ancylostoma braziliense as "a hitherto unreported etiologic factor in the production of Loeffler's syndrome." No descriptions are made of the nematodes involved in their series of cases, but no mention is made of their having ruled out Necator americanus and/or Ancylostoma duodenale as the etiologic agent. Nor was mention made of the details of the stool examinations performed.

According to Belding (Textbook of Clinical Parasitology, New York, D. Appleton-Century Company, 1942, p. 292) "ground itch or hookworm dermatitis caused by the [hookworm] larvae in the skin is most prevalent . . . in the spring and summer months in the Southern United States." It is also well known that the latter nematodes pass through the pulmonary alveoli in the course of their intrahuman development and migration. Hence it appears that it has not been proved that the cases reported by Wright and Gold were not merely cases of hookworm.

NATHANIEL S. LEHRMAN, Albany, N. Y.

[NOTE.—The letter of Mr. Lehrman (a fourth year medical student at the Albany Medical College) was sent to Dr. Wright, who replies:]

To the Editor:—The elimination of the possibility of concomitant infection with Nector Americanus must be based on two factors: (*a*) the clinical appearance of the skin lesions and (*b*) the absence of ova or parasites in the stool six weeks or more after the cutaneous invasion.

Further perusal of Belding's textbook (pages 492-496) clearly differentiates the papulovesicular eruption caused by Necator americanus and less frequently by Ancylostoma duodenale from the classic serpigenous burrows of creeping eruption of Ancylostoma braziliense. The mild, transient vesicular lesions produced by Ancylostoma caninum are similarly differentiated.

If concomitant infection with human hookworm had been present the ova and/or parasites would have appeared in the stool beginning six weeks after the cutaneous invasion. In our original paper (Wright, D. O., and Gold, Edwin M.: Loeffler's Syndrome Associated with Creeping Eruption [Cutaneous Helminthiasis], THE JOURNAL, August 11, p. 1082) we stated that "examination of 81 stool specimens from the 26 patients encompassing periods of observation of ten days to three months failed to reveal presence of ova or parasites in any specimen." In a paper in preparation at the present time we state that "a total of 441 stool examinations have been done on 76 patients with creeping eruption. Nematodal ova or parasites were not found except in 1 case that harbored N. americanus ova but this case did not develop pulmonary infiltration. Two hundred and four of these examinations were performed on 26 patients with Loeffler's pneumonia. Thirteen of these cases with pulmonary lesions had a total of 172 stool examinations over a period of more than six weeks."

Faust's zinc sulfate flotation technic was used in all stool examinations.

D. O. WRIGHT, Lieutenant Colonel, M. C., A. U. S:
Chief, Medical Service.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Societies: Right of State Association to Order County Societies to Admit Applicants to Membership.—The Medical Association of the State of Alabama was incorporated by a legislative act in 1850, which has been amended and codified from time to time. Among other things the special act, as amended and codified, constitutes the association the board of health of the state, and the county medical societies, in affiliation with the state association and organized in accordance with the provisions of its constitution, are constituted boards of health for their respective counties under the general direction of the state board of health. Related legislation vests in these boards of health the sole and exclusive control of the public health and interdicts the setting up of any rival boards of health or executive bodies for the exercise of public health functions. By other legislation the board of censors of the state association is constituted the state board of medical examiners. By the constitution of the state association all members of county medical societies holding charters from the association are *ipso facto* members of the association. Article XV, section 2, of that constitution provides that graduates of reputable medical colleges "shall under such terms as may be prescribed by the association be eligible for membership in county medical societies." By section 3, *ibid.*, county societies, subject to the approval of the association, are authorized to adopt rules and regulations for their government. Section 4, *ibid.*, authorizes county societies "under the general control and supervision of the association" to exercise such jurisdiction over their members as is authorized by their respective constitutions. Section 14, *ibid.*, provides that county societies in affiliation with the association shall abide by all decisions of the association. Finally, for purposes germane to this abstract, article XX, section 3, provides that "the association shall have the right to confirm or amend in such way as it deems proper any verdict rendered, or conclusion reached, by a county society, the decision of the association being final."

After the inception of World War II several members of the Medical Society of Mobile County, a chartered county society of the state association, agreed among themselves to reject all applicants for membership, regardless of eligibility, pending the duration of the war. Drs. Webb and Greene, who in the words of the opinion in the present case "were worthy and reputable practicing physicians of Mobile County and possessed of all the qualifications for membership in the society . . . and . . . conceded to be eminently eligible for membership," applied for membership in the Mobile society and were rejected by reason of the agreement referred to. Just what transpired procedurally thereafter is not made clear in the reported case, but eventually the state association, on notice to all parties concerned, reviewed the action of the Mobile society in rejecting their applications for membership and determined as to each applicant "that there had been no charges filed or evidence presented against (them) and no constitutional, professional, ethical, or moral reasons offered to sustain" the act of the Mobile society in refusing to admit them to membership. The state association, after recommendation of its board of censors, by unanimous vote ordered and directed the county society to enroll Drs. Webb and Greene as members of the Mobile society. Thereafter Walker, a member in good standing of the Mobile society, instituted action against the Mobile society and its secretary to restrain the society from enrolling Drs. Webb and Greene as members of the society. The trial court dismissed the action, and Walker appealed eventually to the Supreme Court of Alabama.

Walker contended that the Mobile society was invested with the sole, exclusive, autocratic and irremediable right and authority to exclude from membership any physician, whether eligible or not, whatever the basis of such denial of membership, and the state association was without authority or jurisdiction to control the county society's action in this respect.

The Medical Society of Mobile County, answered the court, holding its charter from the Medical Association of the State of Alabama and acting in affiliation with it, is subordinate and subject to the supervisory powers of the association. The Mobile society and Walker as a member thereof were thereby subject and amenable to the provisions of the constitution and by-laws of the state association. A reasonable construction of the constitution of the state association, when considered in the light of the purposes the whole structure was designed to effect, makes it clear that the state association duly acted within the scope of its supervisory jurisdiction over the county medical society in ordering the enrolment as members of the two eligible physicians excluded. By the integrated structure of the two organizations the county society was "under the general control and supervision of the association" in regard to such matters (Constitution of State Association, article XV, section 4) and must "abide by all decisions (constitutional) of the association . . . settled by the association" (*ibid.*, article XV, section 14) which decisions shall be final (*ibid.*, article XX, section 3). To permit the perpetuation of the agreement among some of the members of the Mobile society not to admit to membership any applicants during the pendency of the war could finally paralyze the effectiveness of the local society and if transacted long enough might result in the restriction of membership in the local society to those members party to the agreement and would thereby repose in them unintended and autocratic authority. Undoubtedly the constitutions of the state association and the county society, fairly interpreted, intend no such objectives, nor that the state association should be powerless to redress such action. However worthy the motives of the county society members in voting in accordance with their agreement, it was within the competence of the state association on a question of such fundamental policy, in the words of article XX, section 3, of the state association's constitution, to "amend . . . the conclusion reached by the county society, the decision of the association being final."

It is important to note, continued the court, that, by the law constituting the state association as the state board of health, it has become the residuum of official power and is impressed with attributes and functions of a highly public nature. To it have been delegated specific governmental prerogatives and duties by the state, repositing with it of exclusive franchises and powers of an eminent degree and of the highest concern to the public welfare. A similar status prevails as to the county medical society which is the county board of health. The state association and the county societies in affiliation with it have accepted these delegated responsibilities and it is plain that the parent organization, entrusted with such grave public duties, should not be powerless to direct and control action of a subordinate county society in matters of the character now under consideration, which must undoubtedly have a direct effect on the public welfare. There appears to be a certain opprobrium on any physician who is not a member of his county society and of the state association. Among other things, he cannot in this state become a health officer, since the selection of such an officer must be made from the membership of the society. The reasonable effect of thus excluding all eligible, incoming physicians from society membership would be to make them outcasts of the organization, to become members of which all eligible and worthy physicians naturally aspire. It would be sophistical to contend that this result would not strongly tend to discourage the best and most skilful members of the medical profession from locating in Mobile County and that this would not have a direct and deleterious effect on the public health of the county where there is necessarily a need for such physicians, owing to the exceptionally patriotic conduct of a large number of the local practitioners who entered the armed services, thereby resulting in a shortage of civilian physicians. It is manifest that the constitution of the state association, integrated as it is with the public health laws of the state, did not, nor does it, intend that the association should be impotent to correct such action in the discharge of its accepted duties and responsibilities of guarding the public health. On the contrary, it is clear that the constitution of the state association vests in the parent body superior authority and exclusive jurisdiction in matters such as here considered and to fail to give effect to the various provisions indicative thereof, so often repeated throughout the body of the constitution, would be to ascribe to them no more than a meaningless tautology, evidently not intended. The construction placed on these constitutional provisions is entirely reasonable and consistent with the integrated structure of the medical bodies involved, and the rule seems to be established that the courts will not review the correctness of the interpretation placed on the constitution and by-laws of a voluntary association by its duly authorized tribunal in matters merely procedural or jurisdictional, if such interpretation is fair and reasonable. *Harris* v. *Missouri Pac. Ry. Co.*, D. C., 1 F. Supp. 946; *Pratt* v. *Amalgamated Ass'n, etc.*, 50 Utah 472, 167 P. 830; *Long* v. *B. & O. Ry. Co.*, 155 Md. 265, 141 A. 504; *Simpson* v. *Grand Internat. B. of L. Engineers*, 83 W. Va. 355, 98 S. E. 580.

The court accordingly upheld the right of the state association to order the Mobile society to enroll Drs. Webb and Greene as members of the society and therefore affirmed the action of the trial court in dismissing Walker's bill to restrain that enrolment.—*Walker v. Medical Society of Mobile County, 22 So. (2d) 715 (Ala., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, Sept. 29, page 378.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

ARKANSAS: * *Eclectic.* Little Rock, Nov. 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral.* San Francisco, Nov. 11. *Written.* Sacramento, Oct. 15-18. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

CONNECTICUT: * *Medical. Examination.* Hartford, Nov. 13-14. *Endorsement.* Hartford, Nov. 27. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, Nov. 13-14. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

FLORIDA: * Jacksonville, Nov. 26-27. Sec., Dr. Harold D. VanSchaick, 2736 S. W. Seventh Ave., Miami 36.

IDAHO: Boise, Jan. 15. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 9-11. Supt. of Registration, Department of Registration & Education, Mr. Philip Harman, Springfield.

KANSAS: Topeka, Dec. 6. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

MAINE: Portland, Nov. 13-14. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MARYLAND: *Medical.* Baltimore, Dec. 11-15. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 11-12. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 20-23. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 8-9. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement.* Columbus, October. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, March 23. Sec., Dr. J. D. Osborn Jr., Frederick.

OREGON: * *Reciprocity.* Portland, Oct. 19. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Pierre, Jan. 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

VERMONT: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richford.

WISCONSIN: * Madison, Jan. 8-10. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Oct. 13. Address State Board of Healing Arts, 250 Church St., New Haven 10.

DISTRICT OF COLUMBIA: Washington, Oct. 22-23. Sec., Commission on Licensure, Dr. G. C. Rubland, 6150 E. Municipal Bldg., Washington.

FLORIDA: DeLand, Nov. 3. Sec., Dr. J. F. Conn, Box 655, DeLand.

IOWA: Des Moines Oct. 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Ann Arbor and Detroit, Oct. 12-13. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

RHODE ISLAND: Providence, Nov. 14. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: December. Sec., Dr. J. D. Alway, Aberdeen.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Cincinnati

28:701-821 (July) 1945

Evaluation of Visual Acuity Symbols. W. H. Fink.—p. 701.
Influence of Selected Spectral Distribution on Glare Effect, Studied by Means of Dark Adaptation. E. Simonson, S. Blankstein and E. J. Carey.—p. 712.
Binocular and Red-Free Ophthalmology. R. I. Lloyd.—p. 725.
Cause and Treatment of Poor Vision in Aniridia. L. G. Algers.—p. 730.
Aniseikonia and Spatial Orientation. H. M. Burian and K. N. Ogle.—p. 735.
Glaucoma and Essential Progressive Atrophy of Iris. H. S. Sugar.—p. 744
Observations on Retinal Blood Flow with Aid of Kukán's Ophthalmodynamometer. M. W. Morgan Jr., J. B. Mohney and J. M. D. Olmsted.—p. 749.
Recurrent Juvenile Papilloma of Conjunctiva: Case Report. J. D. Walker.—p. 751.

American Journal of Orthopsychiatry, New York

15:381-570 (July) 1945

Germany After War. Round Table—1945.—p. 381.
Children Under Nazi System: Some Facts for Social Diagnosis. R. M. Wittenberg.—p. 442.
Needs and Problems of Military Women in Readjusting to Civilian Life. P. Solomon and M. C. Winfield.—p. 454.
Development of Psychiatric Service in General Hospital and Its Relation to Veteran. J. M. Cunningham.—p. 463.
Group Psychotherapy for Combat Neuroses. S. Paster.—p. 472.
Therapy Through Group of Neurotic Soldiers in Experimental Military Setting. M. R. Friend and S. Olinick.—p. 483.
Value of Civilian Psychiatric Consultation for Army University Cadets. S. H. Kaufman and R. A. Clark.—p. 489.
Conscience in the Psychopath. P. Greenacre.—p. 495.
Developmental Diagnosis and Supervision: Some Postwar Possibilities. A. Gesell.—p. 510.
Rorschach Test Findings in Group of Conscientious Objectors. A. I. Rabin.—p. 514.
Rorschach Experiment: Progress and Problems. S. J. Beck.—p. 520.
Organization Activity in Rorschach Examination. W. Goldfarb.—p. 525.
Readjustment of Child in Postwar Era. Z. S. Wolpe.—p. 529.

Connecticut State Medical Journal, Hartford

9:505-584 (July) 1945

How Shall We Obtain Our Postwar Physicians? J. B. Conant and W. C. Rappleye.—p. 505.
Common Bile Duct Surgery: Use of Vitallium Tubes. H. E. Pearse.—p. 507.
Control of Environmental Health Hazards. A. L. Coleman.—p. 510.
Mental Problems Affecting Industrial Workers, with Special Reference to Veterans. P. J. Moorad.—p. 513.
Management's Views Concerning Employment of Physically and Mentally Handicapped Workers. C. R. Schedler.—p. 518.
Examining, Placing and Safeguarding Industrial Worker. M. I. Hall.—p. 520.
*Penicillin Treatment of Neurosyphilis. A. S. Rose.—p. 522.
Safety Glass Program. P. W. Tisher.—p. 525.
Evaluation of Premarital Examination Law in Connecticut. M. R. Hahn.—p. 528.
Medical Education—Old Purposes and New Methods. H. R. Viets.—p. 530.

Penicillin in Neurosyphilis.—During the past fourteen months the neurosyphilis service of the Boston Psychopathic Hospital has treated 140 cases of symptomatic neurosyphilis. The treatment consisted of one half the usually prescribed amount of fever therapy and penicillin, given concurrently or in succession. Sodium penicillin dissolved in saline solution was administered intramuscularly for a total dose of 3,000,000 Oxford units. According to Rose, penicillin is an active therapeutic agent in all forms of neurosyphilis but the degree of effectiveness has not been determined. The best results are obtained in syphilitic meningitis. A small series of cases of primary optic atrophy have shown surprisingly good results. All forms of parenchymatous neurosyphilis apparently need fever therapy as well as penicillin. Penicillin is an agent which acts directly on the invading organisms and therefore can be useful only in cases in which there is evidence of spirochetal activity.

Journal of Lab. and Clinical Medicine, St. Louis

30:559-638 (July) 1945

*Immunologic Studies in Patients with Subacute Bacterial Endocarditis Treated by Combined Penicillin-Heparin Method: I. Sensitivity to Penicillin. M. Grolnick and L. Loewe.—p. 559.
Effect of Artificially Induced Fever on Humoral Antibodies and on Histamine Intoxication in Guinea Pig. R. Y. Gottschall, D. Laurent and P. DeKruif, in Collaboration with W. M. Simpson, H. W. Kendell and D. L. Rose.—p. 563.
*Studies on Rickettsial Agglutination in Typhus. F. K. Fitzpatrick.—p. 577.
Behavior of Blood Cholesterol in Thyrotoxic Patients Under Treatment with Thiouracil. T. H. McGavack and I. J. Drekter.—p. 586.
Note on In Vitro Respiration of Muscle in Myasthenia Gravis. F. J. Stare and H. T. Ricketts.—p. 589.
Effect of Insulin on In Vitro Respiration of Human Skeletal Muscle. H. T. Ricketts and F. J. Stare.—p. 594.
Effect of Ultraviolet Irradiation on Blood Hemoglobin. A. P. Barer and W. M. Fowler.—p. 600.
Effect of Digitalis, Epinephrine and Surgery on Response to Heparin. C. Moses.—p. 603.

Subacute Bacterial Endocarditis.—Twenty-seven patients receiving intensive and prolonged treatment with penicillin failed to develop any positive skin or ophthalmic reactions to a solution of penicillin containing 10,000 units per cubic centimeter. They did not develop positive skin reactions to the source of this product, the mold Penicillium notatum. The dosage of penicillin had been high, treatment had been given over long periods of time, and in nearly one half of the patients therapy had been administered in interrupted courses. These circumstances would ordinarily favor active sensitization to the drug employed if a potent antigenic substance was involved. The results indicate that penicillin is not a potent antigenic product. The most striking data concern a man who had received six courses of therapy over a total period of 230 days, of which 185 were actual treatment days. The courses ran from 12 to 52 days, the free intervals from 2 to 13 days. The smallest dose in any one course was 2,700,000 units and the largest was 44,500,000 units. The total dose given during the entire period of treatment was 112,620,000 Oxford units. The patient did not develop sensitivity to penicillin nor did he show positive skin reactions to penicillin.

Rickettsial Agglutination in Typhus.—Fitzpatrick's report deals with the results of agglutination tests obtained over a period of years with a variety of serums from man and animals infected with or vaccinated against typhus, with the cross agglutinations encountered and with serum absorption experiments. Some of the agglutinations were performed with the tissue culture antigen, but for the most part the antigens used were prepared from the yolk sacs of infected eggs. For the agglutination test, glass slides having twelve depressions were used. The serum to be tested was set up in tubes in doubling dilutions, and one drop of each dilution was transferred to the slide with a capillary pipet. An equal volume of antigen was added. The slides were then rotated by hand to secure thorough mixing and placed on moist paper in Petri dishes in the incubator at a temperature of 40 C. For uniform results the slides were left in the incubator for five hours. They were then placed in the ice box overnight, after which a final reading was made with the low power objective of an ordinary microscope. With serums which show a titer of 1:80 or above, agglutination in the lower dilutions is visible to the unaided eye after incubation for from thirty to sixty minutes and in much less time if the rotation of the slide is carried out for two minutes. When the test is being used for diagnostic purposes this rapid agglutination is of practical importance. The microscopic agglutination test as used was found to be an easy and convenient means for the diagnosis of typhus in human serums and proved to be a useful tool for the study of agglutinin development in man and animals following infection or vaccination. The observations of Castañeda on the removal

of heterologous typhus agglutinins were confirmed. Serums from rabbits infected with spotted fever did not agglutinate either of the typhus antigens. Serums obtained from cases of endemic typhus were found not to agglutinate spotted fever antigen.

Public Health Reports, Washington, D. C.

60:789-820 (July 13) 1945

Studies in Connection with Selection of Satisfactory Culture Medium for Bacterial Air Sampling. R. Schneiter, J. E. Dunn and Barbara H. Caminita.—p. 789.

60:821-852 (July 20) 1945

Influenza and Pneumonia Excess Mortality at Specific Ages in Epidemic of 1943-1944, with Comparative Data for Preceding Epidemics. S. D. Collins.—p. 821.

Outbreak of Salmonella Infection in Man from Infected Chicken Eggs. J. Watt.—p. 835.

Susceptibility of Golden Hamster (Circetus Auratus) to Tularemia. C. L. Larson.—p. 839.

60:853-883 (July 27) 1945

Influenza and Pneumonia Excess Mortality at Specific Ages in Epidemic of 1943-1944, with Comparative Data for Preceding Epidemics. S. D. Collins.—p. 853.

Relative Value of Liquid Media, Glucose Cystine Blood Agar and Mouse Inoculation in Titration of Pasteurella Tularensis. C. L. Larson.—p. 863.

Use of Lawson's Bean Medium for Laboratory Detection of Mycobacterium Tuberculosis in Sputum. F. L. Evans.—p. 868.

Radiology, Syracuse, N. Y.

45:1-106 (July) 1945

*Intracranial Angiography. C. F. List, C. H. Burge and F. D. Hodges.—p. 1.

Roentgen Observations on Primary Atypical Pneumonia. H. W. Jamison.—p. 15.

Roentgen Appearance of Lobar and Segmental Collapse of Lung. L. L. Robbins and C. H. Hale.—p. 23.

Atrophy of Terminal Phalanges in Clubbing and Hypertrophic Osteoarthropathy. H. S. Weens and C. E. Brown.—p. 27.

*Treatment of Carcinoma of Prostate by Irradiation. A. D. Munger.—p. 31.

Roentgen Study of Ankle in Severe Sprains and Dislocations. E. P. Pendergrass and J. O. Lafferty.—p. 40.

Osteogenic Sarcoma of Skull. L. H. Garland.—p. 45.

Relationship Between Morphology and X-Ray Effects in Implants of Mouse Sarcoma 180 Irradiated with 5,000 and 60,000 Roentgens (in Air). Anna Goldfeder.—p. 49.

X-Ray Growth Zone Studies in Rat Tail for Appraisal of Chondrotropic Effects. J. Gershon-Cohen and H. Shay.—p. 56.

Depth and Exit Doses for Various Phantom Thicknesses. M. C. Reinhard and H. L. Goltz.—p. 70.

Intracranial Angiography.—Blood vessels momentarily rendered densely opaque serve as reference points in detecting disturbances of anatomic relationships produced by intracranial lesions. This method, useful when vascular displacement provides evidence of disease in neighboring tissues, is of special value when the vessels are involved directly. Intracranial angiography has been used systematically at the University Hospital of Ann Arbor since January 1941 in situations in which this method of study appeared to offer the likelihood of solving particularly difficult diagnostic problems. In three years 127 patients have been subjected to this type of examination. In the bulk of these the carotid system was injected; vertebral arteriography was used in only 6 instances. When the indications for its use are clear, intracranial angiography may be employed without danger to the patient if certain conditions are observed. There has been no fatality attributable to the procedure in the 127 cases which they have observed. It is inadvisable to inject any material into the circulation of the brain in cases of extreme arterial hypertension, far advanced arteriosclerosis, acute intracerebral or subarachnoid hemorrhage, recent thrombosis, or embolism of cerebral vessels. Even in the absence of such contraindications, one may occasionally encounter transient hemiparesis, hemiparesthesia, aphasia, convulsive manifestations or temporary accentuation of presenting neurologic signs. Such untoward effects occurred in less than 3 per cent of the patients examined by the authors, and in no instance did they persist. Similar symptoms are as common after pneumographic procedures. Actually angiography is better tolerated than ventriculography in certain cases of expanding lesions associated with high intracranial pressure, because intracranial hydrodynamics are not materially altered. Transcutaneous arterial injections, advocated by some authors, do not appeal to List and his associates, who prefer the direct surgical approach, which eliminates the likelihood of extravascular leakage and inadvertent dislodgment of the needle with consequent danger of uncontrolled bleeding. Egas Moniz uses the simple surgical procedure of exposing the common carotid at the base of the neck. The authors feel that it is only slightly more difficult to prepare the internal carotid for injection and that this approach holds the total amount of contrast material needed at a minimum and obviates annoying shadows cast by branches of the external carotid. Despite its undesirable property of long half-life radioactivity, thorotrast in amounts not exceeding 25 to 30 cc. is the most satisfactory contrast material at present available for intracranial angiography.

Irradiation in Carcinoma of Prostate.—During the two year period ended in May 1943, 27 cases of carcinoma of the prostate were seen by Munger, 12 of which were treated by resection with regional and testicular irradiation, 8 by resection, irradiation and estrogen therapy, and 7 by orchiectomy. The most effective stabilization has occurred among those who were treated by resection, testicular and regional irradiation, and adjunct estrogen therapy coincident with the x-ray treatments. The development of carcinoma of the prostate is seemingly related to the gonadal and extragonadal depots of androgen production. Surgical castration relieves only the gonadal depots of hormonal production. Adequate testicular and regional irradiation definitely dissipates hormonal production. The female hormone depresses androgenic activity.

South Carolina Medical Assn. Journal, Florence

61:129-156 (June) 1945

Hare Lip and Cleft Palate: Plan of Management. W. H. Prioleau.—p. 129.

Recovery from Streptococcus Viridans Bacteremia: Case Report. G. D. Johnson.—p. 131.

Pregnancy Spacing in South Carolina from Public Health Standpoint. J. B. Nettles.—p. 132.

Surgery, Gynecology and Obstetrics, Chicago

81:113-224 (Aug.) 1945

Evolution of Sphincter Muscle Preservation and Reestablishment of Continuity in Operative Treatment of Rectal and Sigmoidal Cancer. H. E. Bacon.—p. 113.

Experiences with Aneurysms in Overseas General Hospital. S. P. Harbison.—p. 128.

*Penicillin Therapy in Acute Osteomyelitis. W. A. Altemeier and J. A. Helmsworth.—p. 138.

Treatment of Intrathoracic Wounds. W. M. Tuttle, H. T. Langston and and R. T. Crowley.—p. 158.

Experience with Lumbar Sympathetic Ganglionectomy for Wounds of Major Blood Vessels of Lower Extremity. J. M. Mason III and W. P. Giddings.—p. 169.

Aseptic Gastric Resection. A. Monteiro.—p. 177.

*Sucking Wounds of Chest. C. S. Welch and J. E. Tuby.—p. 183.

Electrodiagnosis by Means of Progressive Currents of Long Duration: Studies on Peripheral Nerve Injuries in Man. L. J. Pollock, J. G. Golseth, A. J. Arieff and F. Mayfield.—p. 192.

Effect of Cotton and Catgut in Hernial Repair on Postoperative Temperature and Pain. R. W. Zollinger and W. J. Flynn.—p. 201.

Para-Articular Calcification (Pellegrini-Stieda) in Affections of Knee. I. W. Nachlas and J. L. Olpp.—p. 206.

Thenar Palsy Due to Compression of Median Nerve in Carpal Tunnel. R. B. Zachary.—p. 213.

Decidual Reaction of Endometrium Ectopic in Abdominal Lymph Node. H. B. Russell.—p. 218.

Penicillin in Acute Osteomyelitis.—Altemeier and Helmsworth treated 34 cases of acute osteomyelitis with penicillin. There were 25 cases of acute hematogenous osteomyelitis of the long bones, in some of which also the flat bones of the pelvis were involved. There were 3 cases of infection of the pelvic bones only, 5 of the facial and cranial bones, and 1 of the ribs. The ages of the patients showed the prevalence of the disease in the young. Nine of the patients were females and 25 were males, a fact emphasizing the higher incidence of the disease in the male. The etiologic agent was the hemolytic Staphylococcus aureus in 29 cases. Solutions of the sodium salt of penicillin in sterile isotonic solution of sodium chloride with a concentration of 5,000 units per cubic centimeter were used in all but 1 case, in which the calcium salt was employed. The solution was administered by continuous intravenous drip in 10 cases and by interval intravenous or intramuscular injection in the remainder. A dose of 1,500,000 or more units administered

over a period of two or more weeks is the effective dosage. If the diagnosis was made early and penicillin treatment instituted promptly without surgical drainage, both general and local infections were brought under control so thoroughly that a minimal amount of residual bony damage resulted. Moderate delay in diagnosis and treatment increased the extent of bony damage, but the infection was nevertheless quickly arrested without the aid of drainage and without sequestration. Small localized abscesses were treated satisfactorily by aspiration followed by injection of a solution of penicillin. Large abscesses were treated by prompt incision. Delay in diagnosis and treatment not only increased the degree of bony damage but favored the development of large abscesses, sequestrums and metastatic visceral infections. Penicillin is a powerful and effective chemotherapeutic agent in the treatment of acute osteomyelitis. When administered early and in adequate amounts, it reduces the mortality and morbidity, brings the infection under control, minimizes local destruction of bone and resultant deformities, permits spontaneous removal of necrosed bone and healing and makes possible early return of normal or nearly normal function.

Sucking Wounds of Chest.—During a three month period 70 patients with sucking wounds of the chest were treated in an evacuation hospital. In 49 instances the wounds were of the penetrating type; in 20 they were perforating through and through, and there was 1 gutter type of wound. Right sided wounds were nearly twice as common as left sided. Presumably left sided wounds were more frequently fatal on the battlefield. Slight to moderate dyspnea was present in two thirds of the patients, most of whom required oxygen. All patients with sucking wounds were treated in the shock ward, and oxygen therapy was started if necessary. Patients were left on the same litter until they arrived at the surgical ward and sometimes until they reached the postoperative ward. A transfusion of stored citrated blood was begun as soon as possible in those showing signs of shock and hemorrhage. When a patient was out of shock and was not uncomfortable out of oxygen, he was sent to have roentgenograms made. While sucking chest wounds had surgical priority, it was thought that once they had been sealed and shock overcome it was time well spent to let the circulatory and respiratory mechanisms adjust themselves. Three principal types of thoracic operation were performed: (1) wound débridement and closure of the chest opening, (2) thoracotomy and (3) thoracotomy plus transdiaphragmatic exploration of the upper abdomen. Six of the 70 patients died without surgical treatment. Postoperative treatment is directed toward the correction of circulatory and respiratory disturbances, reexpansion of the lung and prevention of infection. The overall mortality rate, 24 per cent, and the operative mortality rate, 17 per cent, were higher than those for other patients with penetrating and perforating wounds of the pleural cavity.

Texas State Journal of Medicine, Fort Worth

41:53-128 (June) 1945

Use of Spinocain as Spinal Anesthetic. L. W. Pollok.—p. 59.
Problems in Rheumatic Fever. A. W. Harris.—p. 62.
Fibrosis of Pancreas and Its Relation to Chronic Nutritional Disturbance and Pancreatic Achylia. D. W. Freeman.—p. 69.
Cervix that Will Not Dilate. J. McIver.—p. 72.

41:129-176 (July) 1945

Socialized Medicine in France. J. V. Sparks.—p. 135.
Battle Injuries of Urethra with Urinary Fistula. T. P. Shearer, T. B. Wiper and J. M. Miller.—p. 137.
Important Foot Fault. G. W. N. Eggers.—p. 140.
*Veratrum Viride in Treatment of Preeclampsia, Eclampsia and Other Hypertensive Syndromes of Pregnancy: Preliminary Report. J. E. Harkins.—p. 143.
Heart Injuries, with Report of 3 Cases. C. D. Reece.—p. 151.
Interesting Diagnostic Problem. S. E. Thompson and W. W. Coulter Jr.—p. 157.
Present Status of Tuberculous Eye. A. E. Jackson.—p. 161.

Veratrum Viride in Hypertensive Syndromes of Pregnancy.—Harkins reviews observations on 34 cases of severe preeclampsia and 14 cases of eclampsia. Evidence is presented that vasospasm of the terminal arterioles plays an important role in the pathogenesis of the disease. Emphasis is placed on veratrum viride as a vasodilator. Only one preeclamptic patient developed eclampsia under the described treatment. Rapid control of convulsions was accomplished by a combined therapeutic regimen which included hypertonic glucose by vein, magnesium sulfate intramuscularly and veratrum viride hypodermically. Cesarean section was not deemed necessary in any of the preeclamptic or eclamptic patients. There were no stillborn infants among the preeclamptic patients and only 1 among the eclamptic. The use of veratrum viride in some of the other hypertensive syndromes of pregnancy is believed to be of value and is under further investigation. A series of 11 such cases is presented. Veratrum viride, in the form of a purified aqueous solution of the active alkaloid, can be given in therapeutic doses without signs of drug intoxication, without producing vascular collapse and without the need of antidotes.

Union Médical du Canada, Montreal

74:877-1040 (July) 1945

*New Form of Goiter: Sclero-Lympho-Lipomatosis of Thyroid. L. C. Simard.—p. 884.
Nature and Origin of So-Called True Hypernephroma of Kidney. J. L. Riopelle.—p. 889.
Preliminary Note on New Technic of Analgesia and Anesthesia in Obstetrics. M. Clermont and J. Cagnon.—p. 897.
Report on the First Three Years on Anticancerous Center of Hospital of Notre Dame. L. C. Simard.—p. 906.
Staphylococcic Meningitis Treated and Cured by Penicillin. R. Amyot.—p. 909.
Spontaneous Pneumothorax: 2 Benign Spontaneous Cases. J. P. Paquette.—p. 912.
Syndrome of Waterhouse-Friderichsen in Nursling of 5 Months. N. Vézina.—p. 919.
Ulcerative Colitis: Case. J. Jobin.—p. 923.
Cancer of Larynx. C. E. Côté.—p. 932.

New Form of Goiter.—Simard presents the case of a girl aged 11 who since birth had presented a swelling in the front of the neck. At the time of clinical examination in August 1944 the thyroid was about five times the normal size. The metabolism was normal to plus 3. A thyroidectomy in September 1944 revealed that the left lobe was the size of a fist and the right about four times the normal size. The entire thyroid gave the impression of fatty infiltration. Large stumps of the thyroid were left in place because of fear of postoperative myxedema. The child was in good health several months after the operation. Macroscopically the removed specimen did not resemble thyroid tissue; it was soft and pale yellow. With slight magnification it was impossible to distinguish thyroid tissue; the gland was transformed into fat tissue divided by numerous connective tissue walls which contained lymphoid islands with clear centers. Strong magnification revealed the structure of the thyroid gland but probably reduced to its most simple form. Small thyroid vesicles appeared in the connective tissue walls or in the lymphoid infiltrations. The connective tissue was abundant particularly in the peripheral parts of the gland, where it formed sclerous regions in which a few glandular vesicles persisted. In a subcapsular region the author found a small adenoma the size of a pea. He suggests that other adenomas might exist in parts he could not examine and that their presence explains the absence of thyroid insufficiency. The lesions can be designated as thyroidal sclerolympholipomatosis. This is not a case of Riedel's ligneous thyroiditis. It slightly resembles Hashimoto's goiter, but this occurs almost exclusively in women around 50, whereas the lesion in question began during intrauterine life. The author thinks that it is a congenital malformation associated with disease of the adipose tissue, for not only is the thyroid infiltrated with fat tissue but multiple lipomas have been found on the neck and another one is beginning in the left axilla.

West Virginia Medical Journal, Charleston

41:177-204 (July) 1945

"To Care for Him Who Shall Have Borne the Battle." T. L. Harris.—p. 177.
Somatic Aspect of Emotional Reactions. F. R. Stern.—p. 179.
Management of Foreign Bodies in Air and Food Passages. V. L. Lance.—p. 185.
Technic for Circumcision. E. S. Phillips.—p. 188.
Management of Rheumatoid Arthritis. R. J. Stevens.—p. 190.

41:205-228 (Aug.) 1945

The Doctor and Public Health Problems. C. W. Meadows.—p. 205.
Management of Inoperable Cancer. N. Treves.—p. 208.
Evalution of Poliomyelitis. W. L. Oliver.—p. 218.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

1:711-742 (June 9) 1945

Total Medicine: Harveian Lecture. A. Hood.—p. 711.
Effect of Underwater Explosions on Human Body. C. P. G. Wakeley. —p. 715.
Synthesis and Destruction of Nicotinic Acid by Mixed Cecal Flora of Man. R. Benesch.—p. 718.
Agar for Local Penicillin Therapy. R. B. Coles, A. N. Barker, S. T. Cowan and E. A. Robertson.—p. 720.
Eosinophilia with Chronic Peritonitis. C. G. Parsons.—p. 721.

1:743-774 (June 16) 1945

Health of Four Hundred Millions. J. N. Morris.—p. 743.
*Systemic Administration of Penicillin: Absorption from Body Cavities. M. E. Florey and N. G. Heatley.—p. 748.
*On Sulfadiazine Dysuria. R. P. Jepson and C. W. M. Whitty. —p. 751.
Infection of Cat-Bite Wound. T. V. Cooper and B. Moore.—p. 753.

Absorption of Penicillin from Body Cavities.—Florey and Heatley report studies that were carried out to ascertain whether a suitable dose of penicillin injected into serous or abscess cavities would not only act locally but produce a prolonged and effective level of the drug in the blood stream. The route in most cases investigated has been the pleural cavity, but penicillin has also been given via the knee joint, intrathecal space and abscess cavities. A single injection following aspiration, at the rate of 120,000 units in twenty-four hours, has been given to adults. For children up to 8 years 1,000 units per pound of body weight in twenty-four hours was used—an amount which, given in divided doses by the intramuscular route, has been generally found adequate to maintain bacteriostasis. The presence of a bacteriostatic concentration in the blood stream (or "serum inhibition") was tested for by the drop-on-slide method. Injection of 120,000 units of penicillin into a pleural cavity, after aspiration of an effusion, ensured a bacteriostatic concentration of the drug in the blood stream for twenty-four hours or more; 240,000 units produced a similar effect for about forty-eight hours. Injection of 120,000 units into 2 intact but infected knee joints produced the same effect for at least thirteen hours in 1 case and twenty-four hours in the other. Injection of 120,000 units in 2 adults, and its equivalent in an infant, into the intrathecal space produced the same effect for about fifteen hours. The protracted systemic effect due to slow absorption does not appear to be an exclusive property of serous membranes but is associated also with cavities in the body not lined with such membranes, such as abscess cavities. Clinical application of these findings has already given good results in (*a*) the prophylaxis of postpneumonectomy infection and (*b*) the treatment of pneumonia, pyemia, osteomyelitis and streptococcic arthritis when accompanied by pleural or synovial effusion.

Sulfadiazine Dysuria.—During the treatment of some 450 penetrating head wounds with sulfadiazine, Jepson and Whitty had an opportunity to study the dysurias occurring with this drug. After an initial 3 Gm. intravenously, 3 Gm. was given by mouth four-hourly for forty-eight hours, then six-hourly for a further forty-eight hours. In the first 40 cases so treated 20 grains (1.3 Gm.) of sodium bicarbonate and the same amount of sodium citrate were given with each dose of sulfadiazine. No special attention was paid to fluid intake apart from maintaining an average daily intake of about 8 pints (3,840 cc.). In this series there were 6 cases (15 per cent) of poisoning. This comparatively high incidence caused the authors to review the alkali and fluid intake, and thereafter, in a further series of 410 cases, with each dose of sulfadiazine, 40 grains (2.6 Gm.) of sodium bicarbonate and 30 grains (2 Gm.) of sodium citrate were given and a total fluid intake of 10 pints (4,800 cc.) in twenty-four hours was aimed at. In this series 11, or 2.5 per cent, of patients developed dysuria; that is, there was a total of 17 cases of dysuria among 450 patients with head wounds. The incidence bears a close relation to urinary p_H; no case occurred with a p_H of over 6.5. No sulfadiazine deposit was found in any urine examined with a p_H of over 7.5. Neither dosage nor length of administration appears to affect the incidence. Intense abdominal pain with loin tenderness, oliguria and blood stained urine are the presenting symptoms. Prophylaxis depends on the control of urinary p_H and output. Treatment is by intensive intravenous fluids with alkalis. In only 5 cases was ureteral catheterization done, and it was probably necessary in only 2. None of these cases were fatal.

Revue d'Immunologie, Paris

9:1-80 (Nos. 1 and 2) 1944-1945. **Partial Index**

Specific and Nonspecific Phenomena in Mechanism of Aggressive Action of Glucidolipidic Antigens. A. Boivin and A. Delaunay.—p. 1.
Study of Antigens and of Isolated Bacilli During Epidemic of Typhoid in Lyons in 1943-1944. P. Sedallian, P. Monnet and A. Bertoye. —p. 14.
Comparative Intradermal Reactions with Crude and Highly Purified Diphtheria Toxoid: Pathogenic Deductions. R. Sohier and Raby. —p. 39.
Flocculation Method: Twenty Years of Application to the Titration of Antidiphtheric Serums for Therapeutic Use. G. Ramon and R. Richou. —p. 42.
*Antitetanic Serotoxoid Therapy in General and Its Employment in the Treatment of Manifest Tetanus in Domestic Animals. G. Ramon, E. Lemétayer and R. Richou.—p. 44.
Serotherapy of Diphtheria in France: A Half Century of Application; Its Origin, Progress and Results: Deductions and Conclusions. G. Ramon.—p. 50.
Comparative Dosage by Flocculation and by In Vivo Method of Antitoxin in Antitetanic Serums. G. Ramon, E. Lemétayer and B. Virat. —p. 67.
*First Results of Obligatory Antidiphtheric Antitetanic Vaccination in Children: Diphtheria Becomes a Disease of Adults. R. Poulain. —p. 70.

Antitetanic Serotoxoid Therapy in Manifest Tetanus.—Ramon and his associates state that the idea of utilizing toxoids not only for the prevention but also for the treatment of toxic infections was first realized by the employment of staphylococcic toxoid in the treatment of various staphylococcic disorders. In an infection like tetanus with its usually rapid evolution the use of toxoid with its relatively slow action involves the risk that the patient may succumb before deriving benefit from the toxoid. Thus the injection of antitetanic serum remains the first and most urgent measure in manifest tetanus. The antitoxin immediately furnishes the means to fight the invading intoxication. Toxoid therapy added to serotherapy will complete the effects of the serotherapy. Numerous experimental studies and trials on human subjects permit the formulation of therapy of developing tetanus consisting in simultaneous injections of a massive dose of antitetanic serum and of a convenient quantity of tetanic toxoid, the latter being renewed several times at four or five day intervals. The early injection of a massive dose of antitetanic serum furnishes at once the quantity of antitoxin necessary for the neutralization of the toxin already in circulation or which the organism continues to elaborate. This method dispenses with the daily serum injections. The toxoid complements the action of the serum in the course of tetanus, and the combination of serum and toxoid insures the stability and permanence of the antitetanic immunity and protects the cured subject against new attacks of tetanus.

Results of Obligatory Antidiphtheric-Antitetanic Vaccination.—Poulain reports a severe epidemic of diphtheria in Lyons during the year 1943 following an increase observed in 1942. It involved the adult population, among whom the percentage of the vaccinated was very small and children up to 3 years of age before their vaccination. The antidiphtheric antitetanic vaccination with the mixed toxoid of Ramon mitigated this outbreak in children of all ages in proportion to the number that had been vaccinated. Vaccination has prevented numerous cases of diphtheria among children, who are more susceptible than adults to epidemic outbreaks of diphtheria. It can be affirmed that when all children are correctly vaccinated diphtheric morbidity will become small and the mortality zero for the population of children. Vaccination will probably become necessary for adults up to the age of 30, since the diphtheric morbidity is considerable and the mortality far from negligible for this part of the population. It might be advisable to make obligatory a renewed vaccine injection at the age of 15 years on leaving school.

Book Notices

Preventive Medicine. By Mark F. Boyd, M.D., M.S., C.P.H., Field Staff Member, International Health Division, Rockefeller Foundation. Seventh edition. Cloth. Price, $5.50. Pp. 591, with 187 illustrations. Philadelphia & London: W. B. Saunders Company, 1945.

As a convenient guide and reference book for teachers of undergraduate medical students in the required course in preventive medicine in the second or third year, this well tested book has a respected and commendable place, as will be acknowledged in greeting this edition. In the process of simplifying the subject and abbreviating the text for the purpose, the author's classification of the preventable diseases lacks desirable distinctions and some major categories. Habit forming drugs such as alcohol, tobacco and those of the morphine and cocaine series might better be separately dealt with and not, as is alcohol, under diseases due to dietary deficiencies. Cancer, so far as preventable, would seem to justify at least a mention and preferably a chapter to itself. There are preventable aspects of mental diseases other than those related to nutritional defects which would seem to claim attention. The allergies are not dealt with, as they might well be, from the environmental and hereditary points of view as preventable conditions of ill health.

Of the thirty-seven chapters, the second to the twenty-third inclusive, which deal with the communicable diseases, are much the most satisfactory and authoritative. Those on heredity and disease (29), the hygiene of infancy and childhood (30 and 31), air heating and ventilation (32) and certain aspects of personal hygiene (33) are not of as high a quality. The 10 pages out of 560 which are devoted in chapter 37 to public health offer but a sketch which will add little to the general information of the medical student.

With such books as those of Rosenau, Mustard and Smillie widely used for students of medicine and public health, the role of the condensed and simplified textbook is less important than it was twenty-five years ago.

The chapters are of good class-session length. The bibliography (pp. 560-566) is good in selection and length. The index is entirely adequate.

The author appears to have a low regard for physicians and their part in initiating, promoting and cooperating in measures of preventive medicine, as expressed in the foreword and elsewhere. The reviewer considers this unfortunate and not consistent with the facts of experience in the United States of America over the past quarter century. An alternative for the foreword is herewith offered as expressing more nearly the truth of the situation: The medical profession does and will always play the leading role in preventive medicine and public health, chiefly in private practice and necessarily in public service. Physicians are making increasing use of their opportunities and the public interest in preventive medicine. There continues to be the heartiest and practically unanimous cooperation between the medical profession and the public health authorities, and this the students of today should understand and take part in.

Pharmacology and Dental Therapeutics: A Textbook for Students and Practitioners. By Hermann Prinz, A.M., D.D.S., M.D., and U. Garfield Rickert, A.M., D.D.S. Ninth edition by Edward C. Dobbs, D.D.S., Associate Professor of Pharmacology, Dental School, University of Maryland, Baltimore. Cloth. Price, $6.50. Pp. 567, with 35 illustrations. St. Louis: C. V. Mosby Company, 1945.

The rearranged contents and standardized names and dosages acceptable to both the American Dental Association and the American Medical Association will keep practitioners abreast of the current knowledge of drugs and their usage. The section devoted to dental therapeutics will be most valuable to the dental practitioner. The authors' advocacy of caution in the use of sulfonamide drugs and of penicillin is supported by the findings of Drs. Canfield, Everett and Ferguson. The authors also point out the fact that relationship between phosphorus metabolism and dental caries and periodontoclasia has not been established and that the direct action of vitamins in the animal body is not thoroughly understood. The numerous prescriptions given are of considerable value to dental practitioners and will enable them to discontinue the use of proprietary drugs, which are usually excessively priced. The book is well got up. The paper is excellent, the type large and clear.

Non-Penetrating Injuries of the Heart. By G. J. C. Brittain, M.B., Ch.B. A Thesis Accepted for the Degree of M.D. (Liverpool). Paper. Pp. 77, with 47 illustrations. Derby, England: The Author, [n. d.].

As the author states in his introduction, there is little or nothing to be found in the average textbook with regard to the subject of nonpenetrating injuries to the heart, but this is largely "owing to the fact that until quite recently the existence of the condition has been looked upon with considerable skepticism." Much of this skepticism has been fostered by the not very critical reports of such injuries. In addition to this, in many cases in which there are so often doubtful objective findings or findings not definitely correlated with the injury, physicians have been inclined to feel that the possibilities of compensation were a more potent etiologic factor than the injury itself.

This short but comprehensive study is important in redirecting the attention of the physician to this type of injury, its diagnosis and its importance. We are prone to forget how elastic the thoracic cage is and that the sternum can be pushed back by a sudden blow or a blast injury far enough to contuse the heart, without any evidence of external injury and without any fracture of ribs or sternum.

In this small volume the author gives a comprehensive review of the problem and of the history, the signs and symptoms arising from the condition, followed by reports of 18 cases. A complete bibliography adds to the value of this contribution to a subject too often disregarded.

Textbook of Neuropathology. By Arthur Weil, M.D., Associate Professor of Neuropathology, Northwestern University Medical School, Chicago. Second edition. Cloth. Price, $5.50. Pp. 356, with 287 illustrations. New York: Grune & Stratton, 1945.

Separate departments of neuropathology have been established in many medical schools and hospitals in this country in the last twenty years. As a result new material has accumulated, now finding its way into textbooks. Prior to 1933, when Dr. Weil published the first edition of this book, there was only one other book in English, except for the translations of German textbooks. Since 1933 at least four new monographs have appeared on the same subject and a journal has been established in this country giving stimulus and encouragement to research. As a reflection of this activity, Dr. Weil has issued a second edition of his well established book, twelve years after the first. In it he has incorporated the advances in neuropathology during the intervening years and corrected minor errors appearing in the first edition. The present volume furnishes a compact, clearly written account of the subject meeting the essentials needed of a student of medicine or a beginner in a laboratory of pathology. The text is authoritative. References are satisfactory and the illustrations were chosen with discrimination. There is a brief section on staining technic.

Galen on Medical Experience. By R. Walzer. First edition of the Arabic version with English translation and notes. Published for the trustees of the late Sir Henry Wellcome. Cloth. Price, $4. Pp. 164. New York, London & Toronto: Oxford University Press, 1944.

This offers to the student of medical history an opportunity of becoming acquainted with a work which was once considered lost. It is important for knowledge of the empirical school, and it presents a survey of the philosophical conceptions of Galen's time. The Arabic manuscript from which the translation was done is the only one in which this work is complete. The Arabic translation, done by Hubaish ibn al-Hasan al-A'sam, is of an exceptionally high standard. The authenticity of the treatise is assured by many important facts which are referred in the preface. It is interesting to note that this treatise was intended to reproduce a disputation between Pelops, a physician belonging to the dogmatic school, and the empiricist Philippos. Galen affirmed definitely his opposition to the physician Asclepiades and sustains convincingly the necessity of the close union of empiricism and theory. The English translation is excellent and makes the book very readable. The notes and bibliography give those who are not familiar with the medicine of the empire the possibility of easy orientation. For all who have an interest in the problems of experimental medicine, which were so vivaciously discussed in antiquity, this book is a precious mine of information. To all physicians who like to be informed about an important phase in the development of medicine it is a valuable source of consultation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ANTICOAGULANT SOLUTION FOR BLOOD PRESERVATION

To the Editor:—I understand that the army blood procurement stations use an anticoagulant solution for whole blood which keeps blood suitable for use as whole blood for as long as one month. Can you supply me with the composition of this anticoagulant and preservative? M.D., Tennessee.

ANSWER.—The diluting fluid adopted during the latter part of the war for the preservation of whole blood collected by the American Red Cross for use overseas by the Army and Navy consists of 1.33 per cent trisodium citrate ($2H_2O$), 0.47 per cent citric acid and 3.0 per cent dextrose. It is used in the proportion one part of diluent to four parts of blood, i. e. 125 cc. of fluid for 500 cc. of blood. With continuous refrigeration at 4 to 10 C., the preservation of whole blood thus diluted is generally satisfactory for about thirty days, but there is some variability in the state of preservation of individual bloods at the end of that time. In practice, the dating period has been held at twenty-one days. This solution has been called ACD (acid-citrate-dextrose) by American investigators. It is essentially the same as that recommended by Loutit, Mollison and Young (*Quart. J. Exper. Physiol.* **32**:183 [Dec.] 1943).

REFRACTORY PROSTATITIS

To the Editor:—I have had pus (Bacillus pyocyaneus) in the prostate for the past twelve years and have tried almost everything—massage, diathermy, intravenous injection of sodium iodide, autogenous vaccines, ultraviolet rays. Is sulfathiazole of value? What treatment is advised? I am 70 years of age. M.D., Florida.

ANSWER.—It is possible that pus in the prostate gland may be associated with an enlargement of the prostate and an abnormal amount of residual urine. If so, the proper approach to the problem would be to remove the obstruction. If, on the other hand, there is only a prostatitis without any associated pathologic change, no form of treatment can be suggested that is better than prostatic massages. Clinical experience in the use of the sulfonamides and also penicillin has been disappointing in the treatment of chronic prostatitis even when the bacteria causing the infection are supposed to respond to these agents. It would seem that thorough urologic examination should be made if this has not already been done.

ETIOLOGY OF ULCERATIVE COLITIS

To the Editor:—What is the latest opinion on Bargen's bacilli as to pathogenicity? Has succinylsulfathiazole been effective, and if so in what dose and for how long? D. Guilford Dudley, M.D., Endicott, N. Y.

ANSWER.—Bargen in his latest book on chronic ulcerative colitis and its modern management again emphasizes the pathogenic role of streptococci. Other investigators, however, do not consider this as established. Modern studies on the action of sulfonamides on the gastrointestinal flora have shown a change from a predominance of gram negative to gram positive organisms without modification of the clinical course. The relative as well as absolute increase in the gram positive flora without deterioration in the clinical condition of the patient may be considered as evidence against the specific pathogenicity of these cocci. The etiology of chronic nonspecific ulcerative colitis still remains obscure.

CHRONIC PROSTATITIS

To the Editor:—I would appreciate any data on the use of penicillin sodium in the treatment of old gonorrhea with chronic prostatitis and posterior urethritis. Is it known to give clinical cure in cases of fifteen to twenty years' duration with the characteristic "gleet"? M.D., Ohio.

ANSWER.—Such a lesion should not be called an old gonococcic condition because it no longer has gonococci but long since has been secondarily infected and has innumerable kinds of secondary invaders, some of which are affected by the use of penicillin but many others do not respond to this medication. It would not be considered good practice to treat such infections by the use of penicillin alone and there is no substitute for local treatment such as massage and dilation for this type of lesion. It is the consensus that penicillin in any amount does not materially add to the effectiveness of standard management

FINGER PRINTING OF CADAVERS

To the Editor:—What is the best method of restoring fingers to normal contour for finger printing for purposes of identification? I refer particularly to cases in which death has taken place some time previously and also to postmortem shrinkages following drowning and submersion. Robert K. Wilson, M.D., Montgomery, Ala.

ANSWER.—If decomposition has not set in and the fingers are pliable, it is sometimes possible by use of a needle syringe to inject either water or glycerin into the tips of the fingers. When this method is followed a piece of cord should be tied securely around the finger immediately below the pattern area before injecting the fluid. The finger is then ready for printing. When the patterns of the fingers are discernible they may be photographed as they are, but in the event that the skin is in an advanced state of decomposition or if there has been a hardening of the skin photography is the only resort. However, when conditions permit, the skin may be carefully removed from each finger and the underside of the pattern areas scraped until the skin is transparent. It should then be placed in a glass frame and photographed, employing an arrangement of transmitted or reflected light. Under the latter circumstances the photographic method alone is employed and there should be no attempt to obtain fingerprint impressions by the inking process.

CRUSHING THE PHRENIC NERVE

To the Editor:—Is there any procedure by means of which one may control the duration of paralysis of the phrenic nerve in the treatment of pulmonary tuberculosis? Major, M. C., A. U. S.

ANSWER.—A thorough crushing of the main phrenic nerve trunk in only one place with the Haight phrenic crusher or with the tip of a mosquito hemostat, together with the resection of absolutely all small accessory phrenic nerve roots, produces hemidiaphragmatic paralysis of approximately six months' duration (reduced in short persons and longer in tall ones). If all accessory roots are not interrupted, a variable and unpredictable amount of diaphragmatic movement may persist after the operation or occur within a few days to several months following a period of complete paralysis. If the main phrenic nerve trunk is not thoroughly crushed, paralysis may be incomplete, or complete and brief. If the main trunk is broadly and thoroughly crushed, or crushed in several places, permanent diaphragmatic paralysis may result, or paralysis may persist for many months. As there is no known method (except by local anesthesia) for producing certain complete paralysis that does not completely destroy the axons at the site of operation, the duration of diaphragmatic paralysis necessarily depends on the rate of regrowth of axons from the nearest ganglion cells to the diaphragm. If the means used to destroy the axons resulted in only a narrow area of scar tissue, the new axons can freely pass this barrier, growing at approximately the rate of 1 mm. per diem. If, however, a broad area of crushing or an injected chemical produces a broad area of scar, the new axons may either fail to pass through this barrier or may do so after a variable period of delay, and then only some of the axons may succeed in passing the barrier, with resulting incomplete return of diaphragmatic function.

CONTRACEPTIVES, TAMPONS AND ENDOMETRIOSIS

To the Editor:—An article in The Journal June 9, 1945 states that "dysmenorrhea, . . . which is seen in women in the upper walks of life who have used contraceptives and vaginal tampons, is usually due to endometriosis." One infers that there may be a causal relationship. Is not endometriosis usually the result of transtubal transplantation of particles of endometrium, and may it not be, at least in an occasional case, the result of such retrograde forces as may arise in the Rubin test or in the use of uterine dilators? The makers of vaginal tampons state that they cause no blockage of flow; how then may these devices be implicated in endometriosis? Can one safely advise their use? How could contraceptives, which of course are not used during menstruation, be to blame? M.D., Colorado.

ANSWER.—It has not been proved that endometriosis has ever resulted from the use of contraceptives or vaginal tampons. It is hard to conceive that any device used in the vagina for contraceptive purposes such as a rubber diaphragm or jelly could block the external os sufficiently to force blood back through the oviducts into the peritoneal cavity. Likewise, the flow of blood from the cervix could not be obstructed by vaginal tampons even if they should extend to the external os. Furthermore, as intimated in the query, not many couples have intercourse during menstruation, and most of them who do know that there is practically no need to use contraceptives at this time. An excellent review of the subject of vaginal tampons was published by Robert L. Dickinson in THE JOURNAL June 16, 1945, page 490.